AN EVALUATION OF A SCHOOL-BASED SMOKING EDUCATION PROGRAM WHICH INCORPORATES THE HEALTH BELIEF MODEL AND ITS ASSOCIATION WITH ADOLESCENT SMOKING ATTITUDES AND BEHAVIOR

by

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ABSTRACT

As the physiological effects of smoking cigarettes constitute major health-related diseases, researchers must continue to investigate and evaluate programs that attempt to decrease the adaptation of the habit.

The school-based education program was conducted in a local Salt Lake high school with a known higher incidence of smoking behavior. The intervention program was designed specifically for the adolescent with two main objectives:

1. To demonstrate the immediate negative physiological effects of smoking, and
2. To both increase awareness of the social pressures present that encourage adaptation of the smoking behavior and ways to more effectively cope with these pressures.

Using the Health Belief Model as the conceptual framework, it was hypothesized that by increasing perceptions of seriousness and susceptibility to the health hazards associated with smoking, the adolescent would decide to take recommended health promotion action, not to adopt the cigarette smoking habit, and/or to alter

current smoking behavior.

This study was divided into two equally important parts. Part I investigated the relationships between the Health Belief Model and the adolescent's smoking-related attitudes and behavior while Part II evaluated the effectiveness of an intervention program on the participant's health beliefs, smoking-related attitudes and smoking behavior.

Implementing a quasiexperimental design, pre- and posttesting were administered to both the control and experimental groups. In Part I, relationships were analyzed using a Spearman Rho correlation analysis to determine associations between four variables: a) demographic data, b) perceived susceptibility, c) perceived seriousness, and d) self-esteem, as well as smoking-related attitudes and behaviors.

In Part II, using an analysis of variance (ANOVA), the efficacy of the intervention upon the subjects' health beliefs (perceived seriousness and perceived susceptibility), smoking-related attitudes and smoking behaviors were measured.

The findings as related to Part I revealed two demographic items of importance. Significant associations between employment status and grade in school were

found. Both variables correlated positively with an increase in smoking behavior. Items measuring perceived susceptibility and perceived seriousness tended to correlate together especially with reference to the physiological effects of smoking in relationship to the adolescent and his/her environment. Also, lower scores of self-esteem correlated with a higher incidence of smoking behavior. The F-statistic was found to be insignificant with respect to the significance of the intervention.

Although the findings (with respect to the intervention) did not reveal statistical significance, there is clinical meaningfulness. Continued research is clearly indicated in an effort to develop smoking education programs, especially designed to meet the unique needs of the adolescent. The adaptation of the Health Belief Model as a useful clinical tool in the development of such programs is evident.

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CHAPTER I

INTRODUCTION

Cigarette smoking has been determined to be the single most important preventable environmental factor contributing to illness, disability and death in the United States (Surgeon General's Report, 1979). In spite of intensive efforts to increase young people's knowledge of the adverse effects of cigarette smoking, adolescents continue to adopt the smoking habit (Evans, 1976). In 1979, the National Institute of Education documented a fivefold increase in smoking between junior and senior high school students.

The U.S. Surgeon General's Report of 1964 was one of the first publications to report that cigarette smoking is causally linked to cancer of the lung. Currently it is estimated that approximately 80% of all lung cancers are due to cigarette smoking. According to the American Cancer Society (1981) there were 805,000 Americans diagnosed with lung cancer. Of those diagnosed, over 50% died of the disease. Smoking has also been implicated in other types of

cancer, including bladder, larynx, and mouth. Cigarette smoking is directly linked to other conditions ranging from colds and gastric ulcers to chronic bronchitis, emphysema and heart disease (American Cancer Society, 1979, p. 19).

It is widely known and documented that adolescents and adults, both smokers and nonsmokers, acknowledge the health hazards associated with smoking. In 1976, a study conducted by the U.S. Department of Health, Education and Welfare found that of 12,000 adults interviewed, 90% agreed that smoking cigarettes is harmful to health. Additional findings in another study, also carried out by the Department of Health, Education and Welfare documented that 75% of the 2,500 adolescents studied were aware of the health hazards associated with smoking cigarettes. Other recent studies and surveys of adolescent smoking behavior also reveal that, despite the widespread knowledge of the health risks of smoking, many youth continue to adopt the smoking habit (Harris, 1979).

Although programs emphasizing the long-term health risks associated with cigarette smoking demonstrate little success, current research in modifying adolescent smoking behavior has shown encouraging results with intervention programs which emphasize the immediate

physiological effects of smoking and ways in which the adolescent can more effectively cope with the social cues to adopt the smoking habit (Killen, Perry & Slinkard, 1980).

Focus of the Study

The main objective of this project was to investigate the effectiveness of a smoking education program which was designed specifically for the adolescent. A second objective was to provide additional information about the current attitudes associated with cigarette smoking behavior of adolescents at a particular high school with a known higher incidence of smoking behavior (Lund, 1981). Thirdly, the health belief model was examined for its usefulness in demonstrating associations between adolescent smoking behavior and their attitudes (especially attitudes pertaining to perception of susceptibility, seriousness, and self-esteem about the health hazards associated with smoking.

CHAPTER II

REVIEW OF LITERATURE

To fully investigate the subject of adolescent risk-taking behavior in relationship to cigarette smoking and effective programs which promote cessation and/or reduction of cigarette smoking, the literature review included three major areas of research. They were:

1. The psychosocial structure of adolescents as it relates to their decision-making process;
2. The traditional antismoking programs versus current less traditional programs; and
3. The clinical application of the Health Belief Model in relationship to modifying adolescent smoking behavior.

The Psychosocial Structure of the Adolescent

Nearly one million adolescents begin to smoke each year (PHS, NIH, 1980). Unfortunately, the widespread attempt to increase young people's knowledge of the long-term consequences of smoking have had

little significant effect and influence upon their decision to smoke or not to smoke. An examination of the period of development known as adolescence is helpful in understanding more factore which do have influence over their decision-making processes and those findings then have implications for the makeup of future antismoking programs (Perry et al., 1980).

The adolescent period is characterized by the formation of an identity or "self-structure" and also by a transition in approach to cognitive tasks, moral issues and psychosocial concerns (Marcia, cited in Adelson, 1980). The development of this identity is based on repeated decision-making tasks, which in turn are influenced by parental-based values, external social forces (i.e., peers), and indecisive actions (Marcia, cited in Adelson, 1980).

The adolescents' growing maturity allows the individual to formalize concepts, comprehend the value of present actions on future actions (potentialities versus actualities) and to evaluate the results of their decision making (Feather, cited in Adelson, 1980). These evolving cognitive skills influence the adolescents' decision to smoke or not to smoke. Thus, the observation that youth experimentation is predictive of adult behavior and habit formation has important

implications for programs aimed at modifying smoking behavior (Russell, 1971).

Two concepts grow out of the adolescents' ability to participate in more complex mental operations (Elkind,cited in Adelson, 1980). As adolescents are preoccupied with themselves and assume that others are equally preoccupied, they construct an "imaginary audience" which constantly monitors their every action, behavior and, of course, appearance. The development of the "personal fable" is the complementary construct. Because young adolescents believe that everyone is watching their "performance," they come to believe that they are extra special (or more special than their younger peers/siblings, as well as people who are older than them) (Elkind,cited in Adelson, 1980). Thus, young people go to great lengths to impress the audience and also to win the approval of the audience.

Most teenagers smoke in the presence of other teenagers and are <u>reinforced</u> by peer pressures (attempting to please their "imaginary audience") to smoke and/or continue to smoke (Horn,cited in Adelson, 1980). Other evidence which supports this finding is the well-accepted fact that smoking is most common among adolescents with smoking parents, siblings and peers (Department of Health, Education & Welfare, 1975).

Further support comes from an extensive review of the literature by Flaun (1965) and Williams (1971) who concluded that peer pressure was the best predictor of smoking behavior. Thus, antismoking programs specifically designed for adolescents have more successful outcomes when they incorporate skill-training techniques to increase the adolescent's ability to more effectively cope with the social pressures to begin and/or continue smoking (Perry et al., 1980).

Traditional versus Current Antismoking Programs

Generally, the traditional approaches to smoking cessation or modifying programs have shown little effect on actual cessation of smoking behavior (Bland et al., 1975; Green, 1976; Kreitler, 1976; Rudolf & Bland, 1976). Although the traditional didactic methods which have focused primarily on the long-term effects of the health hazards associated with smoking document an increase in the individual's knowledge of the associated health hazards, they have not successfully altered smoking behavior (Perry et al., 1980).

Numerous antismoking programs have been implemented in junior and senior high schools in attempts to persuade adolescents not to smoke. Traditionally, programs have employed a wide range of techniques

including lectures, discussions, posters, and films aimed at increasing student awareness of the long-term effects of cigarette smoking which are hazardous to their health. While studies have reported positive changes in knowledge and attitudes, most show little or no effect on students' reported smoking behavior (Andrus, 1964; Beckerman, 1963; Evans & Borgatta, 1970; Holland, 1968; Irwin, Creswell & Stauffer, 1970; Jeffreys & Westerbury, 1961; Morrison, 1964; Rabinowitz & Simmerli, 1974; Sadler, 1969; Weaver & Tennant, 1973). "Cigarette smoking is deleterious to your health now," (Seffrin, 1981) was the theme chosen in Seffrin's study and also in this research project to demonstrate to the adolescents immediacy versus the long-term health hazards associated with smoking.

Beckerman (1963), Sadler (1969), and Rabinowitz and Zimmerli (1974) all found, in their respective studies of traditional school-biased antismoking programs, that although a significant increase was shown in the adolescent's knowledge of the harmful long-term effects of tobacco use, they continued to adopt the smoking habit. Traditional health instruction in the past has meant a teacher-centered curriculum which emphasizes the dissemination of information via a lecture technique (Iammarino, Hiet & Kaplan, 1980).

In recent years, however, researchers have approached the adolescent with antismoking programs that place emphasis on those factors which influence the adolescent's decision to smoke or not to smoke. Programs that focus on the immediate physiological effects of smoking and teach skill-training techniques to avoid the social pressures influence heavily the early adolescent's decision to smoke (Perry et al., 1980).

Perry et al., (1980) designed a program for tenth grade students in an attempt to modify smoking behavior. The program has a bidirectional emphasis which included the following:

1. Demonstration of the immediate physiological changes caused by smoking as measured by carbon monoxide levels, blood pressure, heart rate, and lung capacities; and

2. An increased awareness of the social pressures influencing the adolescent to adopt the cigarette habit and methods to counteract these pressures that encourage smoking behavior.

The control group (N=399; females = 211, males = 188) received the traditional health class material emphasizing the long-term harmful effects of smoking while the experimental group (N=498; females = 271; males = 227) received the intervention as described

above. They found three areas of significance.

Significant differences were obtained between experimental and control groups for each dependent measure. Mean carbon monoxide (co) levels at post-test (as measured in intervals of one day, one week and one month) were 4.83 parts per million (ppm) for subjects in the experimental group (Sd = 4.6) and 9.10 ppm for the control group (Sd = 7.6). A one-way ANOVA revealed these differences to be statistically significant ($F(1,3) = 36$, lq, $p < .01$). At posttest, the experimental group had a significantly greater percentage of subjects reporting abstinence from cigarette smoking in the previous week and month compared to the control group. Furthermore, the experimental participants were significantly more knowledgeable regarding the best way to quit smoking and ways to help others quit and/or prevent them from smoking (Perry et al., 1980).

Botvin and Eng designed a study (1980) to test the effectiveness of a smoking prevention program which focused on both the social and psychological factors which appear to be involved in the development of the smoking habit. They found that while decreases in social anxiety and the need for social group acceptance seemed to have been the most important factors in

preventing the onset of smoking in the eighth grade, the ninth graders responded to an increase in their knowledge concerning the immediate effects of smoking combined with a decrease in their need for group acceptance. The results of this program compare favorably with the more successful recent smoking prevention programs which focus primarily on the social pressures to smoke and/or the immediate physiological consequences of cigarette smoking (Botvin & Eng, 1980). They, therefore, developed an approach to both a) enhance the adolescent's coping mechanisms for dealing with the social pressures to smoke, and b) develop social skills that help reduce associated anxiety factors. Results indicated there was a statistically significant difference in the experimental group versus the control group in the posttest results at one month and three months. There were fewer new smokers reported in those that participated in the experimental program than among the students in the control group. Over a six month posttesting period, statistics showed a 70% reduction in the incidence of new experimental smokers (Botvin & Eng, 1980).

Clearly, the concept of social pressure and the effective management of it are being recognized as a leading factor in the design of adolescent smoking programs (PHS, NIH, 1980). Several other factors associated with the onset of adolescent smoking

are the presence of low self-esteem, lack of self-confidence, and an external locus of control (Botvin, Eng & Williams, 1980). There is a direct correlation between these factors and an individual's susceptibility to the social pressures and peer influences to smoke.

Botvin et al. studied the effects of Life Skill Training approaches in relation to smoking-prevention programs. Their program was specifically designed to:

1. Provide students with the necessary skills to resist direct social pressures to smoke;

2. Decrease students susceptibility to the indirect social pressures to smoke;

3. Provide a means of coping with anxiety, especially those induced by social situations.

The researchers concluded that the adolescent's development of self-improvement skills and anxiety-coping techniques proved valuable in altering smoking behavior.

The incorporation of biofeedback information into antismoking programs is also being investigated in conjunction with the life-skill training techniques method. The purpose of demonstrating the immediate physiological response of the body to cigarette smoking is to provide the adolescent with information about

the immediate negative effects of smoking rather than only the long-term associated health hazards (Perry et al., 1980). By demonstrating to the adolescent the actual immediate physiological changes occurring in even young smokers' bodies, the adolescent is able to observe the initial negative body responses that smoking imposes. The goal, then, is to increase the adolescents' perception of their own personal connection with the health risks associated with smoking, thereby altering or modifying their smoking behavior and/or their decisions to begin to smoke (USDH, 1980).

The Health Belief Model

During the 1950s, the Public Health Service was particularly concerned with the overwhelming failure of people to participate in their health screening tests, which were both easily accessible and provided free of charge or at a nominal cost. The great concern of the Public Health Service for the lack of compliance on the part of the consumer to participate in these health screenings for various asymptomatic diseases precipitated the search for a theory to explain health promotion behavior (Rosenstock, 1974).

> The earliest characteristics of the model developed by Rosenstock, Hochbaum, Leventhal, and Kegels...were that in order for an individual to take action to avoid a disease he would need to believe (1) that he was

> personally susceptible to it, (2) that the occurrence of the disease would have at least moderate severity on some component of his life, and (3) that taking a particular action would in fact be beneficial by reducing his susceptibility to the condition, or, if the disease occurred, by reducing its severity, and that it would not entail overcoming important psychological barriers such as cost, convenience, pain, embarrassment (Rosenstock, 1974, p. 330).

In an attempt to explain and predict health beliefs and behaviors, the original Health Belief Model (HBM) was composed of several key components. These components included: a) modifying factors, b) perceived susceptibility to disease "X," c) perceived severity of disease "X," d) perceived threat of disease "X," e) cues to action, f) perceived benefits of preventive action minus perceived barriers to preventive action, and finally, g) the likelihood of taking the recommended preventive health action. More recent literature examines the expansion of the original Health Belief Model to include motivational factors and nurse clinician (physician) - patient interactions as they affect and influence patient health beliefs and disease preventive actions (Rosenstock, 1974).

Modifying Factors

These factors include demographic (age, sex, race, etc.), sociopsychological (personality, social class,

etc.) and structural (knowledge about the disease, prior contact with the disease, etc.) information. This information is believed to directly influence the individual's perceptions, and the perceived benefits minus the barriers to the preventive action in question (Kegels, 1969).

Perceived Susceptibility

This concept incorporates the person's belief of how susceptible he/she is to a particular disease or health hazard. For instance, one may know that smoking can and does cause cancer; however, if one does not perceive that he/she is personally vulnerable or susceptible to the disease, he/she can continue to smoke believing that "while cancer is a possibility, it is not likely to happen to me" (Kegels, 1969).

Perceived Threat

The outlined approach describes perceived threat as the combination of the individual's perception of both his/her susceptibility to and severity of disease "X." For example, one may perceive himself or herself as highly susceptible to what he/she regards as a very serious disease (Kegels, 1969).

Cues to Action

A cue is something that triggers one to accept

a disease preventive or health-promoting action. The combination of one's perceived susceptibility and severity provide the necessary energy for action, while the perception of benefits minus the barriers describe the pathway for action. The combination of these components, however intense, do not necessarily lead to the actual taking on of the recommended health action. These cues then act as instigators to start the wheel in motion, so to speak. The cues may be internal (body image, self-esteem, fears, guilt, etc.) or external (interaction with friends and peers, the impact of a TV show on a particular disease or a newspaper article, or receiving a postcard reminding one it is time for her annual pap smear). Thus, the intensity of the cue required to trigger the recommended action depends on the levels of the individual's perceived susceptibility to and seriousness of disease "X" (Hallal, 1982).

Perceived Benefits minus Perceived Barriers

The model goes on to explain that although the acceptance of one's susceptibility to a disease thought to be serious provides energy that leads to some form of action, that action taken is not always the recommended preventive health action. For example, if the

combination of fear of an outlined treatment approach and associated pain, cost of the treatment, and a required change in lifestyle were perceived as barriers outweighing the perceived benefits, the individual would most likely reject the recommended preventive health action (Hallal, 1982).

Likelihood of Taking Recommended Preventive Health Action

The interaction and combination of all the various components of the Health Belief Model then determine whether or not an individual will accept or reject the recommendation of a health promotion action. The health belief approach provides health care professionals with a tool that is helpful in determining those factors that influence an individual's action with regard to health behaviors and also provides guidelines to critical timing with respect to the impact of teaching and cues to action (Hallal, 1982).

Much of the research which has examined the relationship of the Health Belief Model variables to both the health promotion behavior and illness behavior has shown support for the model. High levels of perceived benefits are positively correlated with a variety of recommended health promoting behaviors (Hallal, 1982). In 1981, Weinberger and his associates

found that data collected from the 203 smokers that they interviewed generally supported their hypothesis related to the HBM. Exsmokers were described as believing both that the consequences of smoking were serious and also that they were personally susceptible to the hazards associated with smoking. According to Rosenstock, the likelihood that an individual will take a recommended action that will promote health and/or prevent disease is determined by the readiness of that individual to take the action and also by the perceived benefits of the action in question minus the perceived barriers (Mikul, 1981). A cue to action or a stimulus is believed necessary to trigger such action (Hallel, 1982).

The primary concern in the design and implementation of any antismoking program is its potential for effectiveness. Careful consideration was given to the various and assorted theoretical frameworks available before deciding upon the Health Belief Model. The components of the Health Belief Model provide a framework for the researcher to investigate data that will influence health-related behavior. However, the health belief model is not meant to be complete. The components of the Health Belief Model need modification and evaluation of its effectiveness and practicality

in clinical use (or as a clinical tool) (Rosenstock, 1981).

Factors requiring consideration and review in this study are inherent to the population (i.e., adolescence). To review the impact of the physical and psychosocial development of the adolescent is relevant to the development, modification and evaluation of the variables in the Health Belief Model. As mentioned, there is a strong correlation between perceived susceptibility and perceived seriousness (Rosenstock, 1978). Associated with this correlation is the development of a strong, cognitive component. The adolescent's cognitive growth is an individual process, occurring at different chronological stages for the individual. It is this maturity that allows the adolescent to be aware that his/her present actions will have a direct influence on the future. The developmental level at this stage would influence their choice of likelihood of action. The development of adolescent cognition needs future study (Aten & McAnarney, 1981).

In addition to their cognition and maturation, the assessment of perceived susceptibility for adolescents is, again, unique secondary to their psychosocial stage. Adolescents are at a stage where they feel

immunity to certain life hazards. The sense of infallability would influence their attitudes toward their individual susceptibility to disease. The impact of perceived susceptibility may have a different emphasis when working with this particular population.

The Health Belief Model and its usefulness in association with the at-risk population is a topic for this research. Adolescents can be considered a population at risk due to the continuous changing processes in their physical, psychological and social maturation. There is a tendency for increased vulnerability and stress when there are transitions in biological, social and psychological status (Killen, 1983) such as are encountered by the adolescent. It is felt that the variables in the Health Belief Model will provide a means to predict and determine those factors and concepts which have the greatest influence on the adolescent's decision to smoke or not to smoke, but that recognition in modification of variables may need to be added when investigating this population.

CHAPTER III

CONCEPTUAL FRAMEWORK

Problem Statement

This study provides an opportunity to add to the already growing body of research knowledge, evaluation and documentation concerning the effectiveness of smoking programs for adolescents which focus primarily on the immediate physiological effects of smoking and life-skill training in coping with the social pressures to smoke.

The conceptual framework was useful in determining the relationship between adolescents' perceptions of seriousness and susceptibility to the health hazards associated with smoking, and whether they were increased after receiving the experimental intervention. In reference to the HBM, the cue to action was a curriculum which would encourage the adolescent to a) take the recommended health preventative action (continue not to smoke and/or alter current smoking behavior), and b) that the cue to action would demonstrate that the perceived benefits would outweigh the perceived

barriers. With this conceptual framework, the following problem statement was formulated:

> What are the effects of a school-based, antismoking program for adolescents which incorporates components of the Health Belief Model and focuses on the immediate physiological effects of smoking and demonstrates ways to more effectively cope with the social pressures to smoke upon the adolescent smoking behavior?

Research Questions

Introduction

The researchers divided the investigation into two parts. Part I provided for an investigation of the relationship between the Health Belief Model and adolescent smoking attitudes and smoking behavior. This part of the investigation consisted of four dependent variables which were:

a. Demographic variables

2. Perceived susceptibility

3. Perceived seriousness

4. Self-esteem.

Part II of the research encompassed evaluation of the effectiveness of an intervention program which emphasized immediacy versus the long-term health hazards associated with smoking. It incorporated these three objectives:

1. Identification and/or modification of the participant's health beliefs.

2. Identification and/or modification of the participant's smoking attitudes.

3. Identification and/or modification of the participant's smoking behavior.

The following seven research questions were formulated from the problem statement in relation to the two parts of research:

1. Were there associations between demographic variables and smoking attitudes and smoking behavior?

2. Was there a relationship between the adolescents' perceived susceptibility of the health hazards associated with smoking and their smoking attitudes and behavior?

3. Was there a relationship between the adolescents' perceived seriousness of the health hazards associated with smoking and their smoking attitudes and behavior?

4. Was there a relationship between the adolescents' self-esteem and their smoking attitudes and behavior?

5. What was the effect of the intervention (which emphasizes immediacy) on the participant's health beliefs (perceived susceptibility and seriousness)?

6. What was the effect of the intervention on the participant's smoking attitudes?

7. What was the effect of the intervention on the participant's actual smoking behavior?

Figure 1 presents a graphic representation of the Health Belief Model as it was adapted for the purposes of this investigation.

Definition of Terms

The following definitions were employed in this research project.

Immediate Physiological Effects

The initial response of the body to smoking as demonstrated by elevated levels of heart rate, respiratory rate, blood pressure and carbon monoxide levels was defined as immediate physiological effects.

Heart Rate

The number of heartbeats per minute as measured by taking a radial pulse for one minute was considered the heart rate.

Respiratory Rate

Respiratory rate was defined as the number of respirations per minute as measured by counting the number of respirations auscultated.

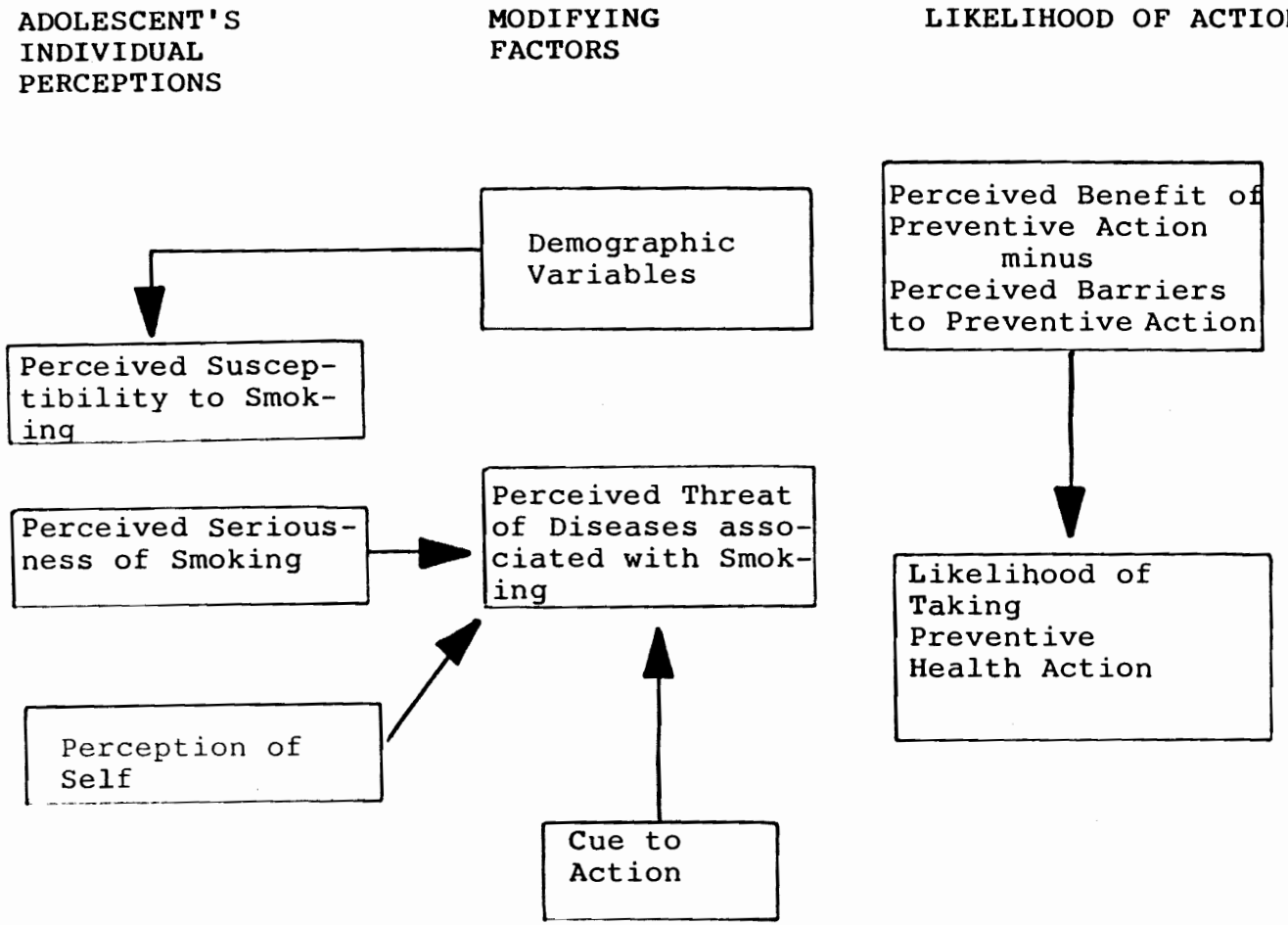

Figure 1. Health belief model (Adapted from Becker, 1977).

Blood Pressure

Blood pressure was defined as the pressure of blood against the walls of the arterial blood vessels. Blood pressure readings were obtained by the indirect brachial artery auscultation technique utilizing a mercury spyhgomamometer and a stethoscope.

Carbon Monoxide

Carbon monoxide was defined as a colorless, odorless poisonous gas which reduces oxygen transport and blocks oxygen utilization.

Carboximeter

A mechanical, electrical component utilized to measure the amount of carbon monoxide in a given breath was defined as a carboximeter (this was a noninvasive procedure).

Adolescence

Adolescence was defined as a period characterized by physical and intellectual growth, development and maturation. The mean age of the participants in this study was 15 years.

Operational Definitions - Part I

A. Perceived susceptibility was measured in this study by the following questions (may be found in the

questionnaire in Appendix D):

1. #A19 (question #35)

Cigarette smoking can harm the health of teenagers.

2. #A35 (question #51)

Cigarette smoking increases your risk of developing cancer.

3. #A36 (question #52)

Cigarette smoking increases your risk of developing heart disease.

4. #A37 (question #53)

Cigarette smoking increases your risk of developing emphysema.

5. #A38 (question #54)

If you do smoke or were to begin smoking, you would be more likely to develop cancer than if you were a nonsmoker.

B. Perceived seriousness was measured in this study by the following questions:

1. #A34 (question #50)

Smoking cigarettes can cause immediate changes in teenagers levels of carbon monoxide, heart rate, and blood pressure.

2. #A41 (question #57)

If you were to develop cancer, you would

consider it (cancer) a very serious disease, perhaps even life threatening.

3. #42 (question #58)

If you were to develop heart disease, you would consider it (heart disease) a very serious disease, even life threatening.

4. #A43 (question #59)

If you were to develop emphysema, you would consider it (emphysema) a serious disease, perhaps even life threatening.

5. #A64 (question #70)

Teenagers who smoke regularly can quit for good anytime they like.

C. Self-Esteem was measured in this study by a composite score of the following 10 questions with scores ranging from 10 - 40 ([10 being low and 40 the highest] [the Rosenberg (1965) ten item self-esteem inventory was used (Lund, 1981)]:

1. #A13 (question #19)

I feel that I'm a person of worth, at least on an equal basis with others.

2. #A13 (question #20)

I feel that I have a number of good qualities.

3. #A13 (question #21)

All in all, I am inclined to feel that I am

a failure.

4. #A13 (question #22)

I am able to do things as well as most other people.

5. #A13 (question #23)

I feel I do not have much to be proud of.

6. #A13 (question #24)

I take a positive attitude toward myself.

7. #A13 (question #25)

On the whole, I am satisfied with myself.

8. #A13 (question 26)

I wish I could have more respect for myself.

9. #A13 (question 27)

I certainly feel useless at times.

10. #A13 (question #28)

At times I think I am no good at all.

D. Demographic data was measured in this study by the following questions:

1. #A1 (question #1)

Age

2. #A2 (question #2)

Gender

3. #A3 (question #3)

Grade in school

4. #A5 (question #7)

Do you have a part-time job after school or on weekends?

5. #A6 (question #8)

How many clubs, organizations, or teams do you belong to at school?

6. #A7 (question #9)

What have most of your school grades been last year?

Operational Definitions - Part II

A. Health Beliefs of the participants were measured in this study by the composite scores of the perceived susceptibility and perceived seriousness of smoking cigarettes.

B. Smoking attitudes were measured in this study by the following questions:

1. #A16 (question #32)

Would your two best friends approve of your smoking cigarettes?

2. #A17 (question #33)

Would you say that five years from now you'll be a cigarette smoker?

3. #A27 (question #43)

It's okay for teenagers to experiment with cigarettes if they quit before it becomes a habit.

4. #A28 (question #44)

I believe the health information about smoking is true.

5. #A57 (question #63)

There is nothing wrong with smoking cigarettes as long as you don't smoke too many.

6. #A59 (question #65)

If you don't smoke cigarettes, other teenagers put you down.

7. #A62 (question #68)

A teenager should be able to do the things he wants to do when he wants to do them.

C. Smoking behavior was measured in the study by the responses obtained from the following list on the questionnaire: a) never smoked, b) experimenter, c) former, and d) occasional and regular.

CHAPTER IV

METHODOLOGY AND RESEARCH DESIGN

Study Design

The purpose of this study was divided into three main parts. First, the researchers wanted to determine the effects of a smoking education program which incorporated two important themes. These were a) the direct observation of the immediate physiological effects of cigarette smoking, and b) group discussions directed at helping the adolescent to more effectively cope with the social pressures that encourage the adolescent to adopt the habit of smoking cigarettes.

The second aspect focused on adding to the already growing body of knowledge concerning the current adolescent smoking attitudes and smoking behavior. The concluding part of the purpose incorporated the Health Belief Model as a tool to investigate associations between adolescents' perceived susceptibility to and the seriousness of the health hazards associated with smoking (self-esteem was also included using a composite

scoring system).

Using a quasiexperimental design, the research was conducted with a control group and an experimental group. The control group were volunteers that did not receive the intervention and were given only the pre- and posttest and pre-carbon-monoxide measurements.

Explanation of the research, teaching intervention and data collection were prepared and administered by two Registered Nurse graduate students. All the information was collected in a classroom setting at Salt Lake High School. The data collection period was a four-week period lasting from October through November of 1982. Each time period was 45 minutes in length, from 10:20 am to 11:05 am.

Prior to the collection of data, the research project was explained in detail and anonymity was guaranteed. Student participation was on a volunteer basis.

The sample population for the two groups was as follows. The total n for the control group was 30 and the n for the experimental group was 31.

The manipulated factor, or the independent variable, was the intervention of the teaching protocol concerning the physiological effects of smoking and the awareness of the environmental pressures to smoke

(see Appendix A for the teaching curriculum). The dependent variables were as follows:

1. Demographic variable
2. Perceived susceptibility
3. Perceived seriousness
4. Self-esteem.

The setting was a classroom. This was considered to be a partially controlled, natural setting. The two advantages of such a setting were: a) convenience, and b) the cost containment (Lund, 1981). However, being in a natural setting the usual occurrences did happen such as alteration in students' behavior which would require intervention by the researchers and/or the teachers.

As part of the demonstration and visualization of the physiological effects of cigarette smoking, both the control and experimental groups were given a carbon monoxide breath analyzer test. Both groups were given the pretest before the teaching curriculum was initiated. The experimental group was then given six sessions of information which included explanation of the smoking effects and the physiologic response through the aid of films, visual aids of anatomical disease parts, measurement of heart rate and group role-playing.

Posttesting and carbon monoxide measurements were done on the experimental group. Posttesting was done on the control group, but carbon monoxide measurements were not. This limitation was due to the physical setting of the classroom. It was a home economics room with gas stoves. The carboximeter would not calibrate properly in this environment.

Sample Selection

The subjects were students enrolled at Salt Lake High School. Salt Lake High School is an alternative high school for students who have a history of academic, social or emotional difficulties within the typical high school setting. Salt Lake High School has an enrollment of approximately 100 students and is located within South High School. Subjects in the experimental group were enrolled in a health class, and subjects in the control group were members of a study period. The total sample size was 61. The age range was 14-18 years of age with the mean of 15.6 for the control group and 15.7 for the experimental group. The control group consisted of 11 males (37%) and 19 females (63%). The experimental group consisted of 24 males (77%) and 7 females (23%). The mean grade in school for both groups was 10th grade.

Human Subjects Considerations

Permission to gather data for this study was obtained from three sources. The research proposal was first approved, with a low-risk designation, by the Review Committee for Research with Human Subjects at the University of Utah. The research proposal was next approved by the Director of Research for the Salt Lake County School District. Finally, permission was granted by both the principal of Salt Lake High School and the Health Educator for that school. As the participants in this study were minors, consent forms were received from the parents of all participants, both in the control and the experimental groups. Approval to gather data from the students was also obtained (via assent forms), and anonymity and privacy of the subjects was honored.

Teaching Curriculum

The independent variable which was instituted by the researchers to the experimental group was the teaching curriculum. As part of the design, the control group did not receive any intervention (behavioral objectives for the students are listed in Appendix A). The sessions were equally divided between the two researchers. The teaching curriculum consisted of seven sessions. Table 1 summarizes the content

Table 1

Summary of Teaching Curriculum

Week No.	Session	Content
1	I.	A. Introduction of study B. Pretest, carbon monoxide levels to control and experimental groups.
	II.	A. Explore reasons why adolescents smoke. B. Myths and facts about smoking reviewed.
2	III.	A. Physical effects of smoking: 1. slides 2. dissections/seeing of items 3. lecture/explanation
	IV.	B. Movie "Who's in Charge?" Measurement of activity and increased heart rate -- as measured by demonstration.
3	V.	A. Social pressures role playing. B. Film - "Live or Die."
4	VI.	A. Posttest and carbon monoxide levels for experimental group. B. Posttesting and carbon monoxide levels for control group.

of each session.

The emphasis of the curriculum was to give information to the participants which would demonstrate to them the immediate physiological effects of smoking which are harmful to their health. For example, the participants were given the opportunity to see that the resting heart rates of their peers who smoked were higher than those participants who did not smoke. The researchers also presented movies which actually demonstrated to the participants that cigarettes made one more "tense" and "uptight" rather than producing relaxation. In conclusion, the participants received a comprehensive overview of the immediate negative factors which have influence over their health now and were given the opportunity to increase their awareness of the peer pressures to begin smoking and ways in which they could more effectively cope with these pressures.

Data Collection Tool

Data was collected by use of a questionnaire. It consisted of 79 questions plus a section of open-ended questions pertaining to the use and frequency of cigarettes. The questions were divided into sections. These sections included questions about:

1. Self-esteem

2. Attitudes toward smoking and smokers
3. Attitudes toward health risks
4. Current smoking behavior
    a. Never
    b. Experimenter
    c. Former
    d. Occasional/regular.

The questionnaire that was utilized was a tool developed by the Department of Health, Education and Welfare (1974). It is a partial replication of a major study by the Department of Health, Education and Welfare on teenage smoking (Lund, 1981). Additional questions were added to the original questionnaire for the purpose of obtaining information relevant to the Health Belief Model. These questions were prepared by the researchers and were tested on a similar adolescent population to rule out possible flaws.

CHAPTER V

FINDINGS, STATISTICAL ANALYSIS AND DISCUSSION

Data was analyzed using two different statistical tests. A nonparametric Spearman Rho correlation was used to measure the strength and direction of relationships between demographic variables and smoking related attitudes and behavior, and also between perceived susceptibility, perceived seriousness, and self-esteem with smoking related attitudes and behavior. An analysis of variance (ANOVA) was used to test the effect of the intervention by comparing the variability between the experimental and the control groups to the variability within both groups.

Table 2 provides the calculated frequency, percent, mean and standard deviation for both groups. In Table 3, a Spearman Rho Correlation was computed to demonstrate the relationship between the demographic variables and smoking related attitudes and smoking behavior. Tables 4, 5, and 6 were computed using the ANOVA statistical test.

Table 2

Demographic Characteristics of the Control and Experimental Groups

Demographic Characteristics	Experimental (N=31) (N)	%	Mean	Std Dev	Control (N=30) (N)	%	Mean	Std Dev
Age								
14 yrs	3	10	15.7	1.21	6	20	15.6	1.29
15 yrs	13	42			9	30		
16 yrs	9	29			7	23		
17 yrs	1	3			6	20		
18 yrs	5	16			1	3		
19 yrs					1	3		
						99		
Gender								
Males	24	77	-	.425	11	37	-	.490
Females	7	23			19	63		
Grade in School								
9th	6	19	-	1.01	7	23	-	1.04
10th	15	48			8	27		
11th	4	13			10	33		
12th	6	19			5	17		

Table 2 Continued

Demographic Characteristics	Experimental (N=31) (N)	%	Mean	Std Dev	Control (N=30) (N)	%	Mean	Std Dev
Part-Time Job								
Yes	7	23	-	.425	10	33	-	.479
No	24	77			20	67		
No. of Clubs Organization Belong								
0	29	94	.09	.396	27	90	.13	.079
1	1	3			2	7		
2	1	3			1	3		
School Grades Been Last Year								
A	8	27	-	1.24	11	38	-	.964
B	11	37			9	31		
C	6	20			7	24		
D	2	7			2	7		
E	3	10			0	0		

Table 3

Smoking Behavior of Experimental and Control Groups (Before Intervention)

Smoking Behavior	Experimental (N=31) N	%	Control (N=30) N	%
Smoking Status				
Never smoked	6	19.0	5	18.0
Experimented Only	5	16.0	4	13.0
Former Smokers	1	3.0	4	13.0
Occasional Smokers	3	10.0	1	3.0
Regular Smokers	16	52.0	16	53.0
# Cigarettes Per Day				
0	13		13	
1	3			
2				
3			6	
4	2		6	
5				
6				
7	1		6	
8			4	
9				
10	7		4	
11				
12			1	
13				
14				
15			1	
16				
17				
18			1	
19				
20	5		3	

Note. Experimental $\bar{X}$ = 6.0; S.D. = 6.9; Control $\bar{X}$ = 6.2; S.D. = 5.5

Table 4

Questions Utilized to Measure Smoking Attitudes

	Question
A-20	Cigarette smoke smells bad.
A-21	Most girls start smoking cigarettes to attract boys.
A-22	Most boys start smoking cigarettes to attract girls.
A-23	People smoke cigarettes to help them think more clearly.
A-24	Kids who smoke are showoffs.
A-25	I feel good knowing I can turn to my parents for advice.
A-26	I don't want to get hooked on anything, including cigarettes.
A-27	It's OK for teenagers to experiment with cigarettes if they quit before it becomes a habit.
A-28	I believe the health information about smoking is true.
A-29	Cigarette smoking should be forbidden inside public places.
A-30	Most boys start smoking cigarettes to try to become more popular.
A-31	Most girls start smoking cigarettes to try to become more popular.
A-32	People who smoke seem to be more at ease with others.
A-33	Teenage smokers think they are grown up, but they really aren't.

Table 4 Continued

Question
A-47 There's nothing wrong with smoking cigarettes as long as you don't smoke too many.
A-48 If I smoke around other people, I take away their right to breathe clean air.
A-49 If you don't smoke cigarettes, other teenagers put you down.
A-50 Smoking cigarettes gives you a good feeling.
A-51 Teenage smokers think they look cool, but they really don't.
A-60 ____ Have <u>never</u> tried cigarettes before, not even a few puffs. (If this is your answer, turn to Part (A).)
____ Have <u>tried</u> cigarettes but never smoked as many as 5 packs. (If this is your answer, turn to Part (B).)
____ Have smoked at least 5 packs of cigarettes but do not smoke now. (If this is your answer, turn to Part (C).)
____ Smoke sometimes, but less than 1 cigarette a week. (If this is your answer, turn to Part (D).)
____ Smoke more than 1 cigarette a week. (If this is your answer, turn to part (D).)

<u>Note</u>. This table is presented as a key to the interpretation of other tables referencing these statements.

Table 5

Relationships Between Demographic Characteristics and Smoking-Related Attitudes and Smoking Behavior (N=61)

Smoking-Related Attitudes & Behavior	Demographic Characteristics					
	Age	Gender	Grade in School	Employed	Clubs and Organi-zations	Academic Grades (Last Year)
A-20	-.06	-.12	-.02	.09	-.14	-.26*
A-21	-.03	.19	.10	.03	-.26*	-.14
A-22	.11	-.06	.21*	.09	-.20	-.14
A-23	.21	-.11	.24*	-.07	.04	.24*
A-24	.07	-.07	.19	.25*	-.30**	-.11
A-25	.01	.04	.07	.03	.02	-.02
A-26	.10	-.18	.10	.17	-.02	-.18
A-27	-.08	-.04	-.09	.02	-.09	.22*
A-28	-.08	-.15	-.10	.18	-.11	-.08
A-29	-.17	.02	-.06	.13	.05	-.37***
A-30	.07	.07	.20	.10	-.16	-.13
A-31	.01	.17	.14	.06	-.17	-.04
A-32	.00	-.03	.06	-.15	-.08	.06
A-33	.02	-.01	.07	.33***	-.05	-.26*
A-47	-.03	.06	.05	-.14	-.01	.16
A-48	.16	-.23*	.12	-.04	.24*	-.18
A-49	.18	.06	.23*	-.17	-.12	-.00
A-50	-.01	.03	.02	-.33***	.01	-.07
A-51	-.00	.03	.02	.25*	-.12	-.44***
A-60						
Smoking Behavior	.00	-.05	.05	.39***	-.05	-.24

Note. *p < .05; **p < .01; ***p < .001. [a]Both study sample combined for these analyses.

Table 6

Relationships of Perceived Susceptibility and Perceived Seriousness

With Smoking Attitudes, Smoking Behavior (N=61), and Self Esteem

	Smoking Attitudes and Behavior	Perceived Susceptibility	Perceived Seriousness	Self-Esteem
A-20	Cigs smell bad	.49***	.60***	-.12
A-21	Girls smoke cigs/attract boys	.08	.11	-.26*
A-22	Boys smoke cigs/attract girls	.21	.18	-.10
A-23	Smoke cigs/think clearly	.09	-.20	-.01
A-24	Kids smoke/showoffs	-.03	-.05	.10
A-25	Feel good/parent advice	.40***	.30*	-.27**
A-26	Don't want to get hooked	.22*	.22*	.03
A-27	OK to experiment/quit before habit	-.30**	-.30**	.07
A-28	Believe health info/about smoking	.58***	.52***	-.15
A-29	No smoking/public places	.24*	.29**	.22
A-30	Boys start smoke/become popular	.05	.02	-.08
A-31	Girls start smoke/become popular	-.08	-.06	-.08
A-32	People smoke/more at ease	-.00	-.13	.04
A-33	Teen smokers grown up/really are not	.15	.15	-.07
A-47	OK to smoke/don't smoke too many	-.34**	-.47***	.15
A-48	Smoke/take away clean air	.24*	.14	-.16
A-49	Don't smoke/teens put you down	-.11	-.17	.20
A-50	Smoking/good feeling	-.05	-.19	.14
A-51	Teen smokers look cool/not really	.04	.11	-.03
A-60	Smoking Behavior	-.04	.05	.15

Note. *$p < .05$; **$p < .01$; ***$p < .001$.

The significance level for the Spearman Rho was set at the .05 level. If the probability that the results happened by chance was .05 or less, then the results were considered statistically significant.

Research Question One

Research question one stated:

> Were there associations between demographic characteristics and smoking related attitudes and behavior?

The six variables included as demographic data were age, gender, grade in school, part-time employment status, number of outside clubs or organizations affiliated with, and average grades received last year. Table 2 presents the demographic data for both the control and experimental groups.

Interpretation

The experimental group had a higher percentage of male participants in relation to female participants: 77% were male and 23% were female. The control group had a two to one ratio of female to male participants: 63% were female and 37% were male. The majority of students in both groups were in the tenth and eleventh grade. Greater than 90% of the subjects in both groups received a grade of "C" or above for their grades in school last year. Furthermore, 69% of the control

group made As and Bs and 64% of the experimental group made As and Bs also.

Both groups yielded approximately the same findings concerning clubs and/or organization affiliation. Greater than 90% in both groups had no affiliation with clubs and/or organizations. Except for the differences in gender, the demographic findings were similar for both groups.

Using a Spearman Rho correlation matrix, 17 statistically significant relationships were found between the demographic characteristics and smoking-related attitudes and/or smoking behavior. Seventy percent of the relationships were correlated with the subjects' employment and their academic grades in school the previous year. There were no relationships that correlated with the subjects age, 5% were associated with gender, and 18% were significant with each characteristic-grade in school and club or organization affiliation.

Table 2 describes the smoking status of the participants in both the experimental and control groups, prior to the onset of the intervention. It is interesting to note that both groups yielded fairly similar findings with respect to their current smoking behavior.

The smoking status was determined according to

the self-respect given by each participant. The questionnaire administered asked each student to describe their current smoking status using the following questions:

Which statement below best described your use of cigarettes? (Check (✓) only one answer.)

____ Have never tried cigarettes before, not even a few puffs. (Never smoked)

____ Have tried cigarettes but never smoked as many as 5 packs. (Experimenter only)

____ Have smoked at least 5 packs of cigarettes but do not smoke now. (Former smoker)

____ Smoke sometimes, but less than 1 cigarette a week. (Occasional smoker)

____ Smoke more than 1 cigarette a week. (Regular smoker)

Those participants who reported to be regular smokers were also asked to report how many cigarettes per day they smoked.

Thirty-five percent of the experimental group and thirty-one percent of the control group were found in the never smoked or experimented only categories. Only 3% of the control group were former smokers while 13% of the control group were former smokers. Sixty-two percent of the experimental group and 56% of the control group were reported to be either occasional or regular smokers.

For both groups, the range of number of cigarettes

smoked per day was 0-20. Thirteen of the participants in each group reported that they did not smoke any cigarettes. The mean number of cigarettes smoked by smokers in the experimental group was 6.0 and for the control group, 6.2.

Table 4 is a key which provides a listing of the questions (from the questionnaire) which were used to measure the subjects' smoking related attitudes. This key will be helpful with respect to the interpretation of the ensuing tables. The questions begin with the code A-20 thru A-33, and A-47 thru A-51 and are followed by their respective question. As stated previously, the questions were derived from the questionnaire utilized by the HEW in 1974 for an extensive study which they conducted on teenage smoking.

Following are explanations of the findings presented in Table 5, and the level of significance in relationship to the demographic variables and the smoking-related attitude and/or behavior question.

A-20 Cigarette smoke smells bad. There was a significant negative correlation of (-.26) at the ($p < .05$) level in relation to the academic grades last year. Subjects with higher academic grades were more sensitive to cigarette smoke.

A-21 Most girls start smoking cigarettes to

attract boys. There was a negative correlation (-.26) at the $p < .05$ level existing between this smoking-attitude question and the demographic variable membership in clubs and organizations. The fewer clubs the subjects were involved in, the greater the likelihood for them to believe this statement.

A-22 Most boys start smoking cigarettes to attract girls. There was a positive correlation of (.21) at the $p < .05$ level with this statement and the subjects' grade in school. The higher the grade in school, the more likely the subject was to believe that boys start smoking to attract girls.

A-23 People smoke cigarettes to help them think more clearly. There was a positive correlation of (.24) at the $p < .05$ level for two demographic variables - grade in school and academic grade last year in relation to this statement. Thus, the higher the grade in school and also the higher the academic grades, the more likely the subjects were to believe this statement.

A-24 Kids who smoke are showoffs. There was a positive correlation (of .25) with the variable employment at the $p < .05$ level and a negative correlation (of -.30) at the $p < .01$ level in relation to the variable - membership in clubs or organizations.

A relationship with those employed and belief in this statement exists. Also, the fewer clubs affiliated with by the subject, the more strongly he/she tended to agree with this statement.

A-25, A-26, A-27, A-30, A-31, A-32, A-47. There were no statistical significant relationships with the demographic variables and these statements. (Refer to Table 2 for code.)

A-27 It's OK for teenagers to experiment with cigarettes if they quit before it becomes a habit. A positive correlation (of .22) at the $p < .05$ level existed with this statement and the demographic variable academic grades in school last year. Thus, the higher the grades achieved, the more likely the subject was to feel that he/she could quit smoking.

A-29 Cigarette smoking should be forbidden in public places. A negative correlation (of -.37) existed at the $p < .001$ level with this statement and the demographic variable academic grades last year. The higher the grades, the less likely the subject was to believe this statement.

A-33 Teenage smokers think they are grown up but they really aren't. This statement had a positive correlation (of .33) at the $p < .001$ level with the variable employment and a negative correlation at the

$p < .05$ level with the variable academic grades last year. Employed teenagers in this study tended to think that this statement was true. Those subjects with lower academic grades responded with more agreement to this statement than did their peers with higher academic grades.

A-48 If I smoke around other people, I take away their right to breathe clean air. Two correlations existed between this statement and the demographic variables. There was a negative correlation (of -.23) at the $p < .05$ level with gender and a positive correlation at the $p < .05$ level with the variable clubs and/or organizations. Therefore, the more clubs the subjects were involved in, the more likely they were to agree with this statement.

A-49 If you don't smoke cigarettes, other teenagers put you down. There was a positive correlation (of .23) at $p < .05$ level between this statement and the variable grade in school. Subjects in the higher grades demonstrated greater agreement with this statement than did their peers in the lower grades.

A-50 Smoking cigarettes gives you a good feeling. There was a negative correlation (of -.33) at the $p < .001$ level with the variable employment and this smoking-related attitude. Those subjects who were

employed tended to agree with this statement.

A-51 Teenage smokers think they look cool, but they really aren't. Two relationships existed between this statement and the variables. A positive correlation (of .25) at the $p < .05$ level with employment and a negative correlation (of -.44) at the $p < .001$ level were evidenced with the variable academic grades in school last year. Those subjects who had part-time jobs tended to agree with this statement while those subjects who achieved high academic grades in school the previous year tended to disagree with this statement.

A-60 Smoking Behavior. There was a positive correlation (of .39) between smoking behavior and employment at the $p < .001$ level. A subject who was employed was more likely to smoke. Also, there was a negative correlation at the $p < .05$ level with the variable academic grades in school the previous year. Thus, there exists a relationship between low academic grades in school and the tendency to smoke cigarettes.

According to this statistical data, the two demographic characteristics that appeared to have significant relationships with smoking-related attitudes and smoking behavior were the subjects' academic grades in school (the previous year) and their employment status. With regard to smoking behavior, interpretation of

the data would suggest that the lower the grades achieved in school by the subject, the greater the tendency to smoke, and that subjects who had part-time employment were more likely to smoke than their peers who were not employed.

Considerations in an attempt to explain the relationship between employment and smoking behavior were:

1. Adolescents who are employed have the financial capability to buy cigarettes.

2. Adolescents who have part-time jobs are incorporated into the adult world. As their psychosocial and cognitive skills are in the process of maturing, they could associate smoking behavior with accepted adult behavior and adapt to that social standard.

A consideration in an attempt to explain the correlation between lower academic status and smoking behavior was:

1. Generally speaking, adolescents who do not divert their energies into academics channel them into extracurricular activities such as friends, cars, sports, "dragging," etc. and smoking often accompanies such activities (Adelson, 1980).

Research Questions Two, Three and Four

Research question two stated:

> Were there relationships between the adolescents' perceived susceptibility of the health hazards associated with smoking and their smoking-related attitudes and behavior?

Research question three stated:

> Were there relationships between the adolescents' perceived seriousness of the health hazards associated with smoking and their smoking attitudes and behavior?

Research question four stated:

> Were ther relationships between the adolescents' self-esteem and their smoking attitudes and behavior?

Table 6 summarizes the significant associations found between:

1. The adolescents' perceived susceptibility of the health hazards associated with smoking,
2. The adolescents' perceived seriousness of the health hazards associated with smoking, and
3. The adolescents' self-esteem and their smoking-related attitudes and behavior.

Interpretation

Interpretations and discussion of Table 6 as related to research questions follows. Using the Spearman Rho correlation matrix, 18 statistically

significant correlations were found (see Table 5). The smoking-related attitude and the variable (perceived susceptibility, perceived seriousness, and/or self-esteem) with which it is significant will be discussed.

Perceived Susceptibility was measured by the following questions in the smoking questionnaire:

A-19 Cigarette smoking can harm the health of teenagers.

A-35 Cigarette smoking increases your risk of developing cancer.

A-36 Cigarette smoking increases your risk of developing heart disease.

A-37 Cigarette smoking increases your risk of developing emphysema.

A-38 If you do smoke or were to begin smoking, you would be more likely to develop cancer than if you were a nonsmoker.

Based upon both study samples combined, at N=61 the Cronbach's alpha coefficient of internal consistency (as a measure of the scale's reliability) equalled .76. This is sufficiently high.

Perceived Seriousness was measured by the following questions in the smoking questionnaire:

A-34 Cigarette smoking can cause immediate changes in teenage levels of carbon monoxide, heart rate, and blood pressure.

A-41 If you were to develop cancer, you would consider it (cancer) a very serious disease, perhaps even life threatening.

A-42 If you were to develop heart disease, you would consider it (heart disease) a very

serious disease, even life threatening.

A-42 If you were to develop emphysema, you would consider it (emphysema) a serious disease, perhaps even life threatening.

A-64 Teenagers who smoke regularly can quit for good anytime they like.

Once again, based upon both study samples (N of 61) the Cronbach's alpha coefficient of internal consistency was .67, an adequate score.

Self-Esteem was measured by a composite scoring system (Rosenberg Self-Esteem Scale). The scores ranged from 10-40; the total score possible was 40 points. Therefore, the subject who scored 40 received the highest possible score. Self-esteem was measured by the following questions in the smoking questionnaire:

A-13 I feel that I'm a person of worth, at least on an equal basis with others.

I feel that I have a number of good qualities. All in all, I am inclined to feel that I am a failure.

I am able to do things as well as most other people. I feel I do not have much to be proud of.

I take a positive attitude toward myself. On the whole, I am satisfied with myself. I certainly feel useless at times. At times I think I am no good at all.

According to Rosenberg, this composite scoring system has a reproducibility of 93% and a scaling of 72%, which are sufficiently high scores. A discussion of the statements used to measure smoking-related attitudes

and behavior (as coded on Table 4) and their level of significance in relationship to the subject's perceived susceptibility, perceived seriousness and self-esteem follows.

The statement, Cigarette smoke smells bad, in the smoking questionnaire was significant at the $p < .001$ for both perceived susceptibility (.49) and perceived seriousness (.60). This is associated with agreement and suggests a strong correlation between this particular smoking-related attitude and the subjects' perceived susceptibility and seriousness to the health hazards associated with smoking.

For the variable self-esteem, the statement, Most girls start smoking to attract boys, is significant (-.26) at the $p < .05$ level. This suggests that the lower the subjects' self-esteem, the higher their agreement with the above smoking-related attitude.

Results from the statement, I feel good knowing I can turn to my parents for advice, revealed all three variables to be statistically significant. Perceived susceptibility is significant (.40) at the $p < .001$ level; perceived seriousness is significant (.30) at the $p < .05$ level; and self-esteem is significant (-.27) at the $p < .01$ level. Perceived susceptibility and perceived seriousness indicate a positive correlation

while self-esteem has a negative correlation with this smoking-related attitude. Therefore, high susceptibility and high seriousness are associated with agreement while low self-esteem is associated with disagreement.

I don't want to get hooked on anything including cigarettes. This statement showed statistical significance (.22) at the $p < .05$ level with both perceived susceptibility and perceived seriousness. This indicates agreement, suggesting correlations between the subjects' perceptions of seriousness and susceptibility and this particular smoking-related attitude.

A significant statistical correlation (-.30) occurred at the $p < .01$ level for both perceived susceptibility and perceived seriousness in relation to the statement: It's OK for teenagers to experiment with cigarettes if they quit before it becomes a habit. A positive correlation exists, suggesting agreement with this statement.

The statement, I believe the health information about smoking is true, was statistically significant at the $p < .001$ level for both perceived susceptibility (.58) and seriousness (.52). This indicates agreement with this statement, and is associated with their

perceptions of susceptibility and seriousness as related to the health hazards associated with smoking.

Perceived susceptibility was significant at a $p < .05$ (.24); perceived seriousness was significant at a $p < .01$ level (.29); and self-esteem was significant at a $p < .05$ level (.22) in association with the following statement: Cigarette smoking should be forbidden in public places. This suggests that agreement with the statement was present for all three varibles.

There is nothing wrong with smoking cigarettes as long as you don't smoke too many. Both perceived susceptibility at the $p < .01$ level (-.34) and perceived seriousness at the $p < .001$ (-.47) level were statistically significant. Although the subjects perceived that smoking cigarettes had serious health implications, they did not perceive equally their susceptibility to the health hazards associated with smoking.

Only perceived susceptibility was significant at a $p < .05$ (.24) level in relationship to the statement: If I smoke around other people, I take away their right to breathe clean air. This indicates agreement with the statement thus creating an association between this particular smoking attitude and the subjects' perception of susceptibility. The smoking behavior category was not significant with

perceived susceptibility, perceived seriousness, or self-esteem.

Eighteen statistically significant relationships were found between smoking attitudes and smoking behavior in relation to perceived susceptibility, perceived seriousness, and self-esteem. The largest group of significant relationships were in the perceived susceptibility category yielding 44% of the total amount of significant statistics, followed by perceived seriousness yielding 39% of the total, and finally the self-esteem category yielding 17% of the significant statistics.

It is interesting to note that collectively, 83% of the data was significant in both variables, perceived susceptibility and perceived seriousness. In relation to this finding, the subjects seem to agree with the smoking attitude questions that were concerned with two general categories, a) Sensory stimuli, for example, questions A-20 and A-48, and b) Control of smoking behavior, for example, questions A-26, A-27, and A-47 (refer to Table 4 for code).

There was a high correlation with question A-28, pertaining to the belief that the health information about smoking is true. Significance at the $p < .001$ levels were obtained for both perceived seriousness

and perceived susceptibility suggesting a high degree of agreement.

The statement (A-25), I feel good knowing I can turn to my parents for advice, was significant for all three variables (perceived susceptibility at the $p < .001$ level, perceived seriousness at the $p < .05$ level, and self-esteem at the $p < .01$ level). There was a positive correlation for perceived susceptibility and perceived seriousness, suggesting agreement with the statement. Self-esteem received a negative correlation indicating disagreement with this statement.

Theoretically, one would like to be able to assume that if one perceives the threat of a health hazard as serious and that if one also perceives to be personally susceptible to that health hazard, and furthermore if one has an adequate self-esteem, one would be less likely to adopt the behavior associated with the health hazard in question. It was disappointing that the data collected did not support this theory with statistically significant findings.

Research Questions Five, Six and Seven

Research question five stated:

> What are the effects of the intervention (which emphasizes immediacy) on the participants' health beliefs (perceived susceptibility and

seriousness)?

Research question six stated:

> What are the effects of the intervention on the participants' smoking attitudes?

Research question seven stated:

> What are the effects of the intervention on the participants' actual smoking behavior?

Interpretation

Interpretation and discussion of Tables 7, 8, 9 and 10 as they relate to Research Question five, six and seven follows.

The computation for the data in Tables 6, 7, and 8 was derived through the use of the statistical test Analysis of Variance (ANOVA). The portion of the variance resulting from group membership (intervention) was arrived at by calculating the sum of squares between the experimental and the control group. In this study, the F-statistic was found to be insignificant. A closer inspection of the mean scores calculated demonstrated further stability. In addition to the ANOVA results, the mean scores for both of the groups were also found to be insignificant. As indicated by the experimental and control groups pre- and post-test mean scores for perceived susceptibility, 7.6 and 8.0 (experimental group), and 8.5 and 7.5 (control

Table 7

ANOVA: Intervention Effects on Health Beliefs (Perceived Seriousness and Perceived Susceptibility)

Source of Variation	Perceived Seriousness Sum of Squares	DF	Mean Square	F	Sig. of F
Within Cells	460.09	105	4.38		
Constant	3864.22	1	3864.22	881.87	.000
Group	1.60	1	1.60	0.36	.546
Time	6.33	1	6.33	1.44	.232
Group by Time	.73	1	.73	0.16	.683

Source of Variation	Perceived Susceptibility Sum of Squares	DF	Mean Square	F	Sig. of F
Within Cells	702.07	106	6.62		
Constant	6865.10	1	6865.10	1036.50	.000
Group	1.22	1	1.22	0.18	.668
Time	1.72	1	1.72	0.26	.611
Group by Time	12.87	1	12.87	1.94	.166

Table 8

ANOVA: Intervention Effect of Smoking-Related Attitudes

(Summary of Univariate Effects)

Variable	Hypoth. SS	Error SS	Hypoth. MS	Error MS	F	Sig. of F
A-47	0.07	96.44	0.07	.93	0.08	.775
A-48	1.29	103.17	1.29	1.00	1.28	.259
A-49	0.07	116.30	0.07	1.12	0.06	.795
A-50	0.26	103.42	0.26	1.00	0.26	.611
A-51	0.49	118.37	0.49	1.14	0.42	.514
A-20	1.20	58.01	1.20	.55	2.18	.143
A-21	0.00	101.78	0.00	.96	0.00	.930
A-22	1.19	103.89	1.19	.98	1.20	.274
A-23	1.44	100.77	1.44	.95	1.50	.223
A-24	0.02	138.24	0.02	1.31	0.02	.882
A-25	1.61	94.45	1.61	.89	1.79	.183
A-26	0.34	85.61	0.34	.81	0.42	.517
A-27	2.08	101.94	2.08	.97	2.15	.145
A-28	0.03	67.60	0.03	.64	0.05	.818
A-29	0.14	126.91	0.14	1.20	0.11	.731
A-30	1.53	107.51	1.53	1.02	1.50	.223
A-31	7.57	98.95	7.57	.94	8.04	.005*
A-32	0.14	80.18	0.14	.76	0.19	.660
A-33	0.11	131.84	0.11	1.25	0.09	.761

*Significant effect.

Table 9

ANOVA: Intervention Effect on Smoking Behavior

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Within Cells	6171.80	109	56.62		
Constant	4188.88	1	4188.88	73.97	.000
Group	0.48	1	0.48	0.00	.927
Time	2.16	1	2.16	0.03	.845
Group by Time	6.66	1	6.66	0.11	.732

Table 10

Mean Scores for Perceived Susceptibility, Perceived Seriousness, and Smoking Behavior

Perceived Susceptibility

	Before	After
Experimental Group	7.6	8.0
Control Group	8.5	7.5

Perceived Seriousness

	Before	After
Experimental Group	5.7	5.7
Control Group	6.4	6.0

Smoking Behavior

	Before	After
Experimental Group	6.1	6.4
Control Group	6.2	5.6

group), statistical significance was not found. Mean scores for perceived seriousness of 5.7 (pretest) and 5.7 (posttest) for the experimental group and of 6.4 (pretest) and 6.0 (posttest) for the control group as well as the mean scores for the smoking behavior which were 6.1 (pretest) and 6.4 (posttest) for the experimental group with that of the control group of 6.2 (pretest) and 5.6 (posttest) were also determined to be significant.

The intervention did not yield statistically significant effects on the subjects' health beliefs (perceived seriousness and perceived susceptibility), smoking-related attitudes (a single smoking-related attitude was found to be significant at the $p < .001$ level), or smoking behavior. Possible explanations for lack of statistically significant intervention effects will be discussed in Chapter VI under Limitations.

CHAPTER VI

SUMMARY AND RECOMMENDATIONS

Limitations and Recommendations for Further Study

The investigators were aware of several limitations which could have affected the results obtained. These are:

1. The small sample size (N=61).

2. Gender was not separated into male and female categories but was combined making it impossible to draw conclusions about gender and smoking-related attitudes and smoking behavior.

3. Guaranteed anonymity and absence of coding at both pre- and posttesting made it impossible to describe individual changes within the groups.

4. Due to equipment failure and environmental factors beyond the investigators' control, the carbon monoxide level results were, unfortunately, deleted from the data compiled.

5. The time period between pre- and posttesting was relatively short, and any long-term effects of the intervention were not measured.

Further investigation of the effects (both short and long-term) of smoking education programs designed specifically for the adolescent is needed. In order to increase ability to generalize, the sample size would need to be increased and measures should be taken to ensure for appropriate cross-sectional sampling.

In order to allow for gender correlation to be significant, coding for male and female needs to be provided. A modified anonymity approach would be more appropriate as it would then allow for analysis of variance testing on the individual within the groups. This could be accomplished by having a single master list with either first names only, initials, or a code, (i.e., A-1, A-2, etc.) that the subject would assume at both pre- and posttesting periods. At the completion of the data collection period, the list could then be destroyed.

Carbon monoxide (co) levels are helpful to the investigator in establishing validity of the subjects' self-report of cigarette smoking behavior. They are also a meaningful tool in helping adolescents to actually see that the co levels of their peers who smoke are significantly higher than the co levels of their peers who do not smoke. Carboximeters are very sensitive instruments and will not operate in all

environments (i.e., home economic rooms, art rooms, etc. - any place where the partial pressure of carbon monoxide is elevated). Care needs to be taken with regards to room selection, where measurements are to be taken, calibration of the machine, and operational techniques.

The health belief model (HBM) provides a framework which allows one to examine some of the many concepts which affect human behavior in relationship to the adoption or rejection of a recommended health promotion action. Further research recommendations include the need for a more intensive evaluation of the HBM in relationship to concepts unique to the adolescent and his/her decision-making process (see Figure 2) for the investigators' adaption of Rosenstock's HBM). A research design which incorporates an adaptation of the HBM so finite as to cater to the adolescent only would allow the investigator greater opportunity to more fully evaluate the adolescents' health beliefs, smoking-related attitudes and smoking behavior.

Further identification of the factors which influence the adolescents' perception of personal susceptibility and also of the seriousness associated with the health hazards related to smoking are instrumental in the design of future smoking education

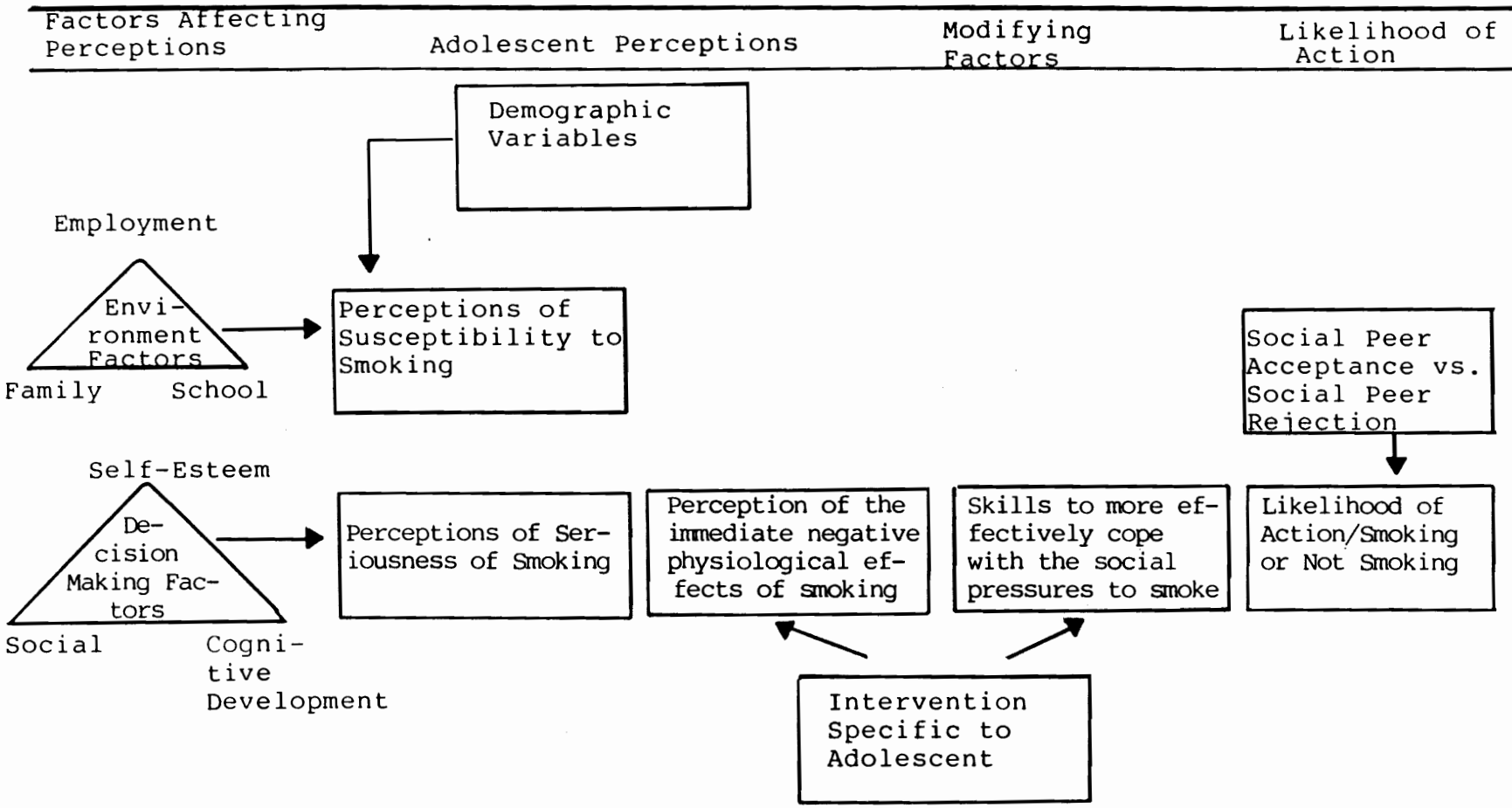

Figure 2. Revision of the health belief model in relationship to the adolescent.

programs for the adolescent. It is advised that programs which claim to be designed specifically for the adolescent be scrutinized carefully for the inclusion of such important considerations as components of self-esteem, including self image, locus of control, peers, parents and family and their level of cognitive development and maturity. Further investigation of the effects of an intervention which emphasizes teaching the immediate physiological effects of smoking and ways to more effectively cope with the social pressures to smoke is needed to document the efficacy of such an intervention for both short- and long-term effects.

Another obvious recommendation, generated by recent findings, suggests the more careful examination of need for the female smoker. Recent studies document that the rate of female smoking has increased by one-half pack/day, while the rate of male smoking behavior remained unchanged. Findings such as these should stimulate further investigation unique to the female and her smoking behavior, including the risks involved with pregnancy and the use of oral contraceptives.

Summary and Implications

The statistical data obtained in this study did not indicate significant relationships between the intervention given and a change in smoking behavior.

There were no statistically significant differences between the experimental group which received the intervention (which emphasized the immediate physiological effects of smoking) and that of the control group which did not receive the intervention.

The findings do suggest, however, that demographic characteristics have significance in adolescent smoking attitudes and behavior. The two that were most significant were a) employment, and b) academic grade in school. The use of the Health Belief Model as a clinical tool proved helpful in identifying smoking-related attitudes that the adolescents perceived to be serious and also personally susceptible.

The statistical analysis failed to reveal statistically significant relationships between the intervention and the experimental groups' health beliefs, smoking-related attitudes and/or smoking behaviors. It is certainly noteworthy, however, that 13 of the subjects (or 69% of the smokers), volunteered to participate in a smoking clinic to help them stop smoking cigarettes. This finding is in and of itself encouraging and of clinical significance. The investigators suggest that an intervention for the adolescent which emphasizes the immediate negative physiological effects of smoking and also attempts to help the adolescent develop more

effective skills for coping with the social pressures to adopt the cigarette habit can have an important impact upon the adolescent's decision to smoke or not.

The implications for continued measures to stop or curtail smoking behavior is the responsibility of all health care providers. The extensive amount of research which focuses on why people smoke and why they continue to adopt this habit is often confusing and overwhelming. The main emphasis in recent research focuses on helping people of all ages to realize the seriousness of and to feel personally susceptible to the indisputable fact that cigarette smoking is harmful to their health. Long-term effects on both health and the environment are being emphasized.

Possibilities for the potential development of school-based smoking education programs appear innumerable. Allowing adolescents who are former smokers to take a major role in new smoking education programs seems a natural and practical transition. As the adolescent is peer-oriented, important information, ideas and skills could have greater meaning for the adolescent when presented by members of his/her own peer group. Others, including parents, community and civic leaders, nurses and physicians could also be incorporated into the smoking education curriculum.

This varied group of concerned citizens could provide information discerning the myths versus the facts about cigarette smoking in ways that are "adolescent" oriented for greater impact.

As recommended, the health belief model can be used as a clinical tool to design, implement and evaluate health related programs which affect behavior.

Using the basic Rosenstock format, these researchers attempted to revise the model specifically for the adolescent and the unique factors that influence adolescent behavior.

Based upon the findings in our study, two important variables, perceptions of seriousness and susceptibility require further investigation. It is suggested that two main factors be considered in relationship to the adolescent and his/her perceived seriousness and perceived susceptibility to the health hazards associated with smoking. They have been identified as a) the environment, and b) decision-making factors. The environment variables includes these three components:

1. employment status
2. family
3. school.

The decision making variable also includes three com-

ponents which are:

1. self-esteem,
2. social factors, and
3. the cognitive development of the adolescent.

Further research should evaluate the interrelationship of these subcomponents and their effects on adolescents' perceptions of seriousness and susceptibility. Also, these variables need to be incorporated in the development of smoking education programs that would emphasize the two main themes of our research:

1. the immediate negative physiological effect of smoking, and
2. skills to more effectively cope with the social pressures to smoke.

In conclusion, for the adolescent, peer acceptance or peer rejection has a major impact upon his/her behavior. It is suggested that peer acceptance versus peer rejection could be the single most important factor influencing the adolescents' decision to smoke or not to smoke (see Figure 2).

By the time one reaches adolescence, many of one's beliefs and ideas are fairly crystalized. The investigators would like to suggest that school-age children as young as five and six years of age begin receiving and continue to receive throughout grade school and

also high school, not only smoking education information, but also information about health and wellness, substance abuse (including drugs and alcohol), and other health-related information. The information presented should be catered to the age and cognitive development of the child so that he/she could begin to incorporate at a very young age (and continue to do so) factual information that would help the then adolescent to make decisions about the kinds of habits he/she will adopt into his/her lifestyle.

As cigarette smoking has been determined to be the single most important preventable environmental factor contributing to illness, disability and death in the United States (Surgeon General Report, 1979), it only makes sense that efforts to attack this health problem are continually ventured, evaluated, and tested for efficacy. As primary health-care providers, nurses can be instrumental in providing the public with valuable health information through education, research, and clinical practice. Nurses can also be innovative and creative as they strive to design new methods which prove to be effective in reaching the public in meaningful ways.

APPENDIX A

TEACHING PROTOCOL

Behavioral Objectives

The student, after attending six, 45-minute lectures and discussions, completing the assigned questionnaires, and participating in group role play designed specifically for the adolescent, will be expected (to be able) to do the following:

1. Separate fact from fiction with regard to the myths and common beliefs associated with cigarette smoking.

2. List and discuss common reasons why adolescents either begin to smoke or choose not to smoke.

3. Analyze his/her own decision to smoke or not to smoke and the influence that family, peers, media, etc. had on that decision.

4. Recognize the techniques utilized by advertising companies that encourage cigarette smoking and develop ways to counter these effects.

5. Identify the social pressures that encourage adolescents to adopt the smoking habit and demonstrate ways to more effectively cope with these pressures.

6. List and define the immediate physiological effects of smoking and also the long-term health hazards associated with smoking.

7. Demonstrate his/her understanding of the "Slow Motion Suicide" attitude related to cigarette smoking by taking responsibility for his/her own decision to smoke or not to smoke.

Introduction

We are Registered Nurses who are interested in young people and their decision to smoke or not to smoke. We have designed a program especially for adolescents that will:

1. Demonstrate and explain the immediate physiological effects that smoking has on your body. We will be measuring your blood pressure, pulse, respiration rate, and CO breath levels.

2. Discuss the myths and the truths about cigar-

ette smoking as proven by current research.

3. Evaluate the factors which influence your decision-making process - what makes you decide to smoke or not to smoke?

4. Provide you with a) some insight into the world of advertising and other media techniques which are designed to influence your decision to smoke, and b) ways in which to counter this effect.

We hope that this program will be beneficial to you and that you will be able to utilize the information and skills taught during the next four weeks in a way that will help you enjoy your lives to the fullest.

To begin with, we will have you fill out a questionnaire which asks you about your attitudes and beliefs related to cigarette smoking.

1. Please do not put your name on the questionnaire. Instead, put a letter of the alphabet which you will be given. This will insure that all results will be kept confidential.

2. Please answer every question; do not leave any blank; you may have up to 20 minutes to complete it.

3. Raise your hand when you have completed the questionnaire, and we will come and pick up the questionnaire.

4. Next, we will be measuring the level of carbon monoxide in your breath. This is a simple procedure which requires you to breathe into a bag so that the level of CO can be determined.

During this second session (class period) we will be exploring reasons why adolescents both begin to smoke or choose not to smoke.

Let us list on the blackboard some of the reasons why you think an adolescent would start smoking.

<u>Why Smoke</u>?

1. To fit in; to be cool; to feel accepted.

2. Because everyone else does, for example,

parents, siblings, friends, etc.

3. To be accepted by my peers.

4. To be sophisticated.

5. To be more like an adult.

6. To help you relax, calm down.

7. To give you something to do with your hands.

8. Because it feels good.

9. Because you enjoy smoking.

10. It makes you feel important.

11. Smoking makes you feel prettier or more handsome.

12. It gives you sex appeal.

13. Because boys are more attracted to girls who smoke; because girls are more attracted to boys who smoke.

14. It gives you a lift; picks you up when you're feeling down.

15. Because then you are never alone; you always have your smokes.

Now let's compare this list with one which gives reasons why adolescents would choose not to adopt the smoking habit.

1. Because smoking causes cancer.

2. Because smoking shortens your life.

3. Because smoking causes heart disease and emphysema.

4. Because you can't taste your food as well as you used to.

5. Because you can't smell as well as you used to.

6. Because your body smells like smoke.

7. Because your breath will smell bad.

8. Because your boyfriend/girlfriend may not like to kiss you after you've just had a cigarette.

9. Because you lose your "wind."

10. Because you can't play sports as well.

11. Because you tire out more quickly.

12. Because you give up your control - you are no longer in charge, the cigarettes are.

13. Because you become dependent on the cigarettes.

14. Because you develop a habit that is difficult to break.

15. Because smoking cigarettes begins to affect your body in a negative way, right from the very first puff you ever take.

16. Because your friends, family, etc. do not smoke.

17. Because you know you can still be accepted by your peers without starting to smoke.

18. Because you feel good about yourself when you decide to be a nonsmoker.

Myths and Facts About Cigarette Smoking

1. Is it proved that cigarette smoking leads to lung cancer?

A definitive conclusion on this question was issued by the U.S. Surgeon General in January, 1964, when he reported this position arrived at by a panel of top doctors and scientists which had been appointed as a fact-finding commission to review the evidence:

> "Cigarette smoking is causally related to lung cancer in men; the magnitude of the effect...far outweighs all other

factors. The data for women, though less extensive, point in the same direction. The risk of developing lung cancer increases with duration of smoking and the number of cigarettes smoked per day, and is diminished by discontinuing."

2. Is there anything specific in cigarette smoke that may cause lung cancer?

A number of chemical agents have been found that are capable of causing cancer; and a number of others (known as cocarcinogens) which assist the action of cancer-causing chemicals. Skin cancer has been produced experimentally in animals with chemicals found in cigarette smoke.

3. Do filters reduce the danger of cigarette smoking?

Yes. Cigarette filters trap a substantial part of tar and nicotine. Today, 85% of all cigarettes smoked have filters. Cigarette companies have also reduced tar content of cigarettes by mixing with leaf tobacco the stems and tobacco discards which have lower tar and nicotine levels.

4. If you smoke cigarettes and <u>don't inhale</u>, are you safe from lung cancer?

Safer than if you do inhale. Recent studies show that lung cancer death rates increase with the amount of cigarette smoke inhaled. Most cigarette smokers inhale to some degree, perhaps involuntarily.

5. Why don't all cigarette smokers get lung cancer?

There are many risk factors involved into the individual's susceptibility to lung cancer. Factors such as environmental, occupational hazards, smoking patterns, and family history. Autopsies show <u>all</u> cigarette smokers have some lung damage.

6. How many people in the United States die of lung cancer?

Approximately 85,000 per year.

7. Isn't city smog worse than cigarettes?

No. Air pollution figures indicate it plays no significant role in lung cancer. Studies are ongoing in major cities and industrial areas concerning the relationship between air pollution and lung cancer.

8. Why is it dangerous for women to smoke while pregnant?

Recent evidence links smoking while pregnant to a) stillbirths, b) increased mortality among newborns, and c) low birth weight. Lower-than-normal birth weight is associated with a child's poor physical and emotional development.

9. What are the immediate effects of smoking while pregnant?

Nicotine restricts blood vessels and breathing movements of unborn babies in women who smoke, while carbon monoxide reduces the oxygen level of their blood.

10. What is the connection between cigarette smoking and heart disease?

Death rates of cigarette smokers from coronary heart disease are at least double those of nonsmokers.

11. Will a cigarette smoker live as long as a person who does not smoke?

Of American men aged 25, twice as many two pack-a-day smokers may expect to die before age 65, as nonsmokers. Life expectancy of a two pack-a-day smoker at 25 is 8.3 years less than a nonsmoker's.

12. Does cigarette smoke make the heart beat faster?

Yes. Smoking does increase the pulse rate. Probably this is due to nicotine in the smoke.

13. Is there any connection between smoking habits of parents and children?

Yes. Studies show that the number of high school students who smoke cigarettes is twice as high if their parents smoke.

14. Why is it bad for young people to smoke cigarettes?

Because the effects of smoking are cumulative. Those who start smoking early in life smoke more and find the habit more difficult to break. They run far greater risk of illness, disability, and loss of life than those who begin later or never begin.

15. If you start smoking early but quit in your teens, will you still get lung cancer?

Anyone who gives up cigarette smoking decreases the risk of developing lung cancer.

16. Why do young people start smoking?

For any of several reasons: Because it is the accepted thing to do; because parents, friends or associates smoke; to try to express independence; to try to act mature; because they enjoy it.

17. Won't we have a cure for lung cancer by the time present teenagers reach old age, or perhaps be able to provide a "safe" cigarette?

These are possibilities. But the surest way to avoid lung cancer is not to smoke cigarettes. And there are other serious diseases and disabilities associated with cigarette smoking.

18. Do more boys smoke than girls?

In 1968, 3,150,000 teenagers 12 to 18 smoked cigarettes regularly - among boys, the population percentage who smoked was 14.7, among girls 8.4. By 1974, the figure for boys had remained about the same as it had been in 1972, 15.7, but the percentage of girls who smoked had increased to almost the same figure as the boys - 15.3. The concern is that smoking habits are established in the teens and these teenage girl smokers will become adult women smokers; in another 10 years there should be as many adult women smokers as there are men smokers.

19. Are more women smoking today?

Yes. The trend has been increasing steadily over the past 30 years, partly as a result of advertisement and promotion. The recent upsurge in lung cancer death

rate for women reflects the increase in number of women smoking.

20. What is the best way to stop cigarette smoking?

Many people stop entirely, all at once. Others manage first by cutting down or switching to low-nicotine, low-tar cigarettes. Others find the need for some kind of substitute for smoking.

Questions and answers obtained from American Cancer Society: "Answers To the Most Often Asked Questions About Cigarette Smoking and Lung Cancer."

Social Pressures to Smoke

These questions will be discussed:

1. Do any of you choose your friends simply on the basis of whether they do or don't smoke?

2. Do any of you like or dislike someone just because they smoke cigarettes?

Many adolescents start and continue to smoke because their peers smoke. When a cigarette is offered, a refusal or hesitancy brings forth the questions: "Aren't you one of us?" "Are you a baby?" or "Are you chicken - come on, everyone else does it." To resist these pressures to smoke requires courage to be different and determination to be one's self.

Models whom one admires and wishes to emulate, be these parents, siblings, friends, teachers, church leaders, etc., who do not smoke, set an important example. "One example is better than a 1,000 words, even if they are true" (Dr. Karl Evang, Director General of Health Services of Norway).

The decision to smoke or not to smoke is one that each individual must make for himself/herself. Cigarettes are available and easily accessible. How can those who are faced with this decision make a free and intelligent choice?

First of all, you must understand completely the seriousness of the hazards associated with smoking. It is not enough to be vaguely informed; you must be convinced as doctors and nurses are convinced. Most

of you have heard of the risk of smoking but really know very little about it and certainly do not perceive yourself to be personally at risk. This belief is characteristic of the period of development known as adolescence, of which you all are going through - everyone goes through it you know. Even Robert Redford and Burt Reynolds had acne when they were teenagers! Anyway, while we are adolescents, we come to believe that we are super heroes. For example, did you know that most adolescents believe that they can drink alcohol, even large quantities and not get drunk; that they can drive fast cars and never get in accidents; that they can have sex, but need not worry about getting pregnant; and that they most certainly can take drugs and not become addicted.

Naturally, adolescents know that there is no way possible that their smoking cigarettes can cause them to get cancer, heart disease, or emphysema. Being a teenager does not, unfortunately, make you immune from being drunk, pregnant, and/or addicted to drugs or cigarettes. Contrary to popular belief, adolescents are equally vulnerable to the natural consequences of their behavior!

Group Role Play Situations

Situation No. 1:

You are at a party where your three best friends are smoking. They offer you a cigarette and when you say, "no thanks," they begin to put you down. What do you say next?

Situation No. 2:

Your friend picks you up in his/her car on the way to school. He/she lights up a cigarette and offers you a drag. You don't smoke, but you don't want to lose your friend. How can you explain to your friend why you don't smoke and still remain friends?

Situation No. 3:

You are out on a date with your boyfriend/girlfriend whom you really, really like and care about. He/she

is a chain smoker and wants you to start smoking also. You are worried that your boyfriend/girlfriend will drop you if you don't start smoking. How can you keep your boyfriend/girlfriend without compromising your decision not to smoke?

Situation No. 4:

You are in the bathroom during a class break and your friends all light up a cigarette. They are kind of ignoring you because you aren't smoking too, and it makes you feel bad. If you smoke with them, will you be happier and more accepted by your friends, or will you feel like you let yourself be pressured to smoke?

Situation No. 5:

You and your best buddy are having hamburgers at Wendys. You smoke and so you offer your friend a cigarette. He/she politely refuses. How does this make you feel? Can the two of you still be friends?

Situation No. 6:

You are babysitting and discover a pack of cigarettes on the coffee table. You have friends who smoke and your father also smokes, but you have not adopted the smoking habit yourself. Now, however, you find yourself tempted to try a cigarette. What kinds of thoughts and feelings do you have? Do you really want to be dependent on cigarettes? Can you try one cigarette and then never smoke again?

Advertising Techniques (lecture, discussion, and visual aids)

Advertising has been tremendously effective in promoting cigarette smoking. We can hardly look at magazines, newspapers, or billboards without being exposed to glamorous and appealing advertisements for this or that brand of cigarettes. Cigarette advertising reaches nearly every American who can either read, or understand the spoken word. It is virtually impossible for any one person to avoid some form of cigarette advertising.

For example, on your way to school, whether in a car or bus or on foot, you will probably pass by a billboard boasting of the merits of a particular cigarette. Restaurants often have advertising decals for cigarettes on entrance doors (also wall clocks and counter mats). Cigarette advertisements have been very successful in their subtle but effective attempts to persuade teenagers to smoke despite the known health hazards (Federal Trade Commission, 1967).

Let's take a look at some of the various cigarette ads in today's magazines and also other ads for things which young people are attracted to. We shall take a look into the hearts of these advertisements and see exactly what kinds of "subtle" promises are made to us if we buy and use their products. (We have three large posters with all kinds of cigarette ads among other things, i.e., Tab, Hanes Pantyhose, Mountain Dew, Snickers (energy boost!), Diet Pepsi, etc., etc., etc.!)

We are going to help the students discover that often the ads set us up to believe that, for example, if we smoke Virginia Slims we are liberated. The fallacy here is that if one is addicted to cigarettes (so in other words one is dependent on them) one is not liberated or independent after all. More examples: If we drink Tab, we will have a slim, sexy body, and if we wear Hanes Pantyhose, men will follow us wherever we go; or if we use Impulse Perfume, men will unexpectedly give us flowers; and, if a man bathes with Irish Spring, women will find him irresistible.

Session IV

Discussion of the immediate physical effects of smoking and the related long-term health hazards associated with smoking.

Outline

A. Introduction of the movie, "Who's In Charge"

1. The movie demonstrates the immediate physiological effects smoking has on the body.

a. Define the term physiological.

1. The processes of life that occur in the body every second and that are responsible for a healthy, functioning human being.

b. Preface the movie's focus by explaining that changes begin to occur in smokers' bodies immediately.

1. Smoking begins to cause damage to young people's bodies even though they are not aware of the changes, and though the long-term hazards will not be apparent until they are 30, 40, 50, etc. years old, the negative effects begin with their very first puff.

c. Review terms that might be confusing.

1. Define various diseases associated with smoking, for example, cancer, heart disease, emphysema, etc. - brief explanation and write on board.

(Time allotted is 10 minutes.)

B. Movie - Time allotted is 15 minutes.

C. Discussion of Film and Related Information. (Time alloted is 20 minutes.)

1. Immediate Physiological Effects of Smoking.

a. Elicit from the students their thoughts/ ideas of symptoms that might be associated with smoking.

1. Increased heart beat.

2. Cold hands and feet.

3. Shortness of breath.

4. Cough.

5. Increased sputum.

6. Dizziness.

7. Faintness.

8. Occasional nausea/vomiting/diarrhea.

9. Decreased sense of taste.

10. Odors (breath).

11. Hoarseness.

12. Decreased physical endurance.

Purpose:

a. To reinforce the information given by the film.

b. To emphasize the warning signs that their young bodies give to them in response to their cigarette smoking.

c. These signs are representative of the immediate negative physiological effects of smoking.

2. What Causes these Symptoms?

a. Gases

1. Carbon monoxide (CO),

2. Hydrogen cyanide.

b. Define CO (a gas, also found in exhaust from cars).

c. Action - combines with a RBC (a component in our blood and reduces the amount of oxygen that gets to our cells).

d. Chemicals - over 200 chemicals.

1. Tars.
(Main two)
2. Nicotine.

They have carcinogenic properties (able to produce cancer).

e. Visual aids (slides of effects of tar/ nicotine on lab animals).

3. Long-term Effects.

a. Elicit from the students the diseases that are known to be associated with smoking.

b. List them.

*1. Lung cancer.

*2. Heart disease.

a. Stroke/vessel damage.

b. Heart attack.

3. Circulatory problems.

4. G. I. disturbances.

a. Ulcers

b. Oral cancer.

*5. Respiratory.

a. Chronic bronchitis.

b. Emphysema.

6. Peridontal disease.

7. Effects on pregnancy.

*Emphasis will be primarily given to these disease entities.

c. Review the effects on:

1. Circulatory system.

a. Increased heart rate (nicotine).

b. Causes small arteries to contract and become smaller - decreased flow causing decreased skin temperature.

c. Increased heart rate, increased blood pressure, abnormal EKG readings.

2. Respiratory System.

   a. Destruction of our protective mechanism.

      1. Cilia (hair-like structures which function in a continuous sweeping motion removing particles from the respiratory tubes, thus keeping lungs clean and free from damage).

      2. Cigarette smoke first slows the action of cilia and eventually destroys them exposing the membranes to injury.

         (Audiovisual aid slides of cilia at work).

3. Briefly review the immediate physiological effects and their relationship to the long-term effects which eventually causes disease, ill health, and decreased life span or incapacitating disease.

4. Final Note.

   a. The risk of these health hazards greatly decrease when a smoker stops smoking.

   b. Physical symptoms secondary to smoking resolve: for example, less shortness of breath, circulation better, decreased cough, taste and smell improves, increased exercise tolerance, etc.

APPENDIX B

INFORMED CONSENT

Consent Form for Participation in a School-Based Smoking Education Program for the Adolescent

A. Purpose of the Investigation:

This is a research project designed to study adolescent cigarette smoking behavior. The purpose of the study is to examine the effects of a school-based smoking education program which incorporates the observation of the immediate physiological effects of smoking in conjunction with antismoking discussion groups.

B. Procedure to be Used:

1. Your son/daughter will participate in four sessions held once a week for four consecutive weeks. The time of each session will be 45 minutes.

2. In the first session, we will examine smoking behavior as it relates to adolescents, including the social pressures that encourage smoking behavior.

   A pretest will be administered to determine your son/daughter's degree of knowledge and perceived susceptibility to the known diseases associated with smoking.

   In the second session, we will incorporate skill-training techniques that the adolescent can use to more effectively cope with the social pressures to smoke.

   In the third session, we will examine the immediate physiological effects of smoking. Blood pressure, heart rate, respiratory rate, and carbon monoxide levels will be measured on each volunteer. (None of the measurements described require any invasive procedures).

   In the fourth session, we will incorporate ways to stop smoking and support decisions not to smoke.

3. At the conclusion of these four sessions, a written posttest will be administered to your son/daughter to determine the effectiveness of this antismoking program.

4. Six weeks after completion of this antismoking program, the same posttest will be administered to your son/daughter to determine the long-term effectiveness of the antismoking program.

C. Known Risks, Inconveniences, or Side Effects That Can Be Expected:

All of the physiological measures are easily obtained. (These measurements are directly obtainable and do not require any internal manipulation of the volunteer's body.) There are no known associated risks.

D. Benefits Which May Accrue to You, the Volunteer:

Your son/daughter may gain information about the social pressures which encourage one to smoke, the immediate physiological effect smoking has on the body, and ways to both cope with the social pressures present and to quit or modify smoking behavior.

E. Other Conditions:

1. Participation is entirely voluntary.

2. Your son/daughter can withdraw from the study at any time.

3. If you have questions regarding the study or your son/daughter's participation in the study, please call either Margaret Armstrong, Ph.D., 649-1261, Barbara Rogers, R.N., 534-1164, or Laurie Sonneborn, R.N., 531-8449.

I hereby approve participation of my son/daughter

_____ in this study.

_____ _____

Signature of parent guardian

Date

_____

Legal Position of approving person

APPENDIX C

ASSENT FORM

I agree to participate in the above study, as described. I understand that complete anonymity is guaranteed.

_____ _____

Signature Date

APPENDIX D

QUESTIONNAIRE

Cigarette Smoking Among Teenagers

Please answer the following questions without talking to anyone else in your class. Answer the questions quickly and honestly. Do not put your name on the survey. If you have any questions, please raise your hand. On some questions you will need to write a short answer or number, but most of them you can answer by checking (✓) a blank space.

I. Personal Information

A-1 Age: _____ (Years old)

A-2 Sex: _____ (1) Male _____(2) Female

A-3 What grade are you in?_____(Grade)

What school do you attend?

What is your zip code? _____

A-4 Have you ever lived outside of Utah?
____1. Yes ____2. No

A-5 Do you have a part-time job after school or on weekends?
____1. Yes ____2. No

A-6 How many clubs, organizations, or teams do you belong to at school? _____

A-7 What have most of your school grades been last year?
Check One

_____ (A)
_____ (B)
_____ (C)
_____ (D)
_____ (E)

Complete the following statement with the first words that you think of:

Smoking cigarettes is _____.

A-8 How would you describe your health?

____1. Poor
____2. Not very good
____3. Fair
____4. Good
____5. Excellent

What are the most serious health problems that you have ever had?

_____

A-9 Has anyone in your family ever had cancer?

____1. Yes...who?_____
____2. No
____3. Don't know

A-10 How do you feel about the statement, "Becoming a success is a matter of hard work."

____1. Strongly Disagree
____2. Disagree
____3. Undecided
____4. Agree
____5. Strongly Agree

A-11 How much do you agree that people should be expected to handle their own problems?

____1. Strongly Disagree
____2. Disagree Somewhat
____3. Agree Somewhat
____4. Strongly Agree

A-12 I often feel lonely.

____1. Disagree
____2. Agree

Check (✓) one box for each question below.

A-13 Self-Esteem	(1) Strongly Agree	(2) Agree	(3) Disagree	(4) Strongly Disagree
I feel that I'm a person of worth, at least on an equal basis with others.				
I feel that I have a number of good qualities.				

	(1) Strongly Agree	(2) Agree	(3) Disagree	(4) Strongly Disagree
All in all, I am inclined to feel that I am a failure.				
I am able to do things as well as most other people.				
I feel I do not have much to be proud of.				
I take a positive attitude toward myself.				
On the whole, I am satisfied with myself.				
I wish I could have more respect for myself.				
I certainly feel useless at times.				
At times I think I am no good at all.				

Do you remember doing any of the following things in school in the 5th, 6th, or 7th grade that were parts of the Berkeley Health Project? (check yes or no for each)

Yes	No		
____	____	1.	Dissecting a lung
____	____	2.	Studied effects of tobacco
____	____	3.	Learned mouth-to-mouth resuscitation
____	____	4.	Dissecting a heart

Yes	No		
____	____	5.	Walking over a floor diagram of a heart
____	____	6.	Studied the brain or nervous system

III. Smoking Section

A-14 How easy is it, or how easy would it be for you to get cigarettes?

____1. Very hard
____2. Fairly hard
____3. Fairly easy
____4. Very easy

A-15 Do your 2 best friends smoke?

____1. No, neither of them smoke.
____2. One smokes but the other does not.
____3. Yes, both of them smoke.

A-16 Would your 2 best friends approve of you smoking cigarettes?

____1. No, neither of them would approve.
____2. One of them would approve but not the other.
____3. Yes, both of them would approve.

A-17 What would you say is the possibility that 5 years from now you will be a cigarette smoker?

____1. Definitely not
____2. Probably not
____3. Don't know
____4. Probably yes
____5. Definitely yes

A-18 Check all the following sports that you have participated in.

____ basketball	____ soccer
____ baseball	____ snow skiing
____ football	____ tennis
____ golf	____ volleyball
____ gymnastics	____ waterskiing
____ hockey	____ bowling
____ jogging	____ other
____ racketball	

Answer all of the following questions by checking (✓) one of the boxes under the agree/disagree categories.

	(1) Strongly Agree	(2) Mildly Agree	(3) Mildly Disagree	(4) Strongly Disagree
A-19 Cigarette smoking can harm the health of teenagers.				
A-20 Cigarette smoke smells bad.				
A-21 Most girls <u>start</u> smoking cigarettes to attract boys.				
A-22 Most boys <u>start</u> smoking cigarettes to attract girls.				
A-23 People smoke cigarettes to help them think more clearly.				
A-24 Kids who smoke are showoffs.				
A-25 I feel good knowing I can turn to my parents for advice.				
A-26 I don't want to get hooked on anything, including cigarettes.				

	(1) Strongly Agree	(2) Mildly Agree	(3) Mildly Disagree	(4) Strongly Disagree
A-27 It's OK for teenagers to experiment with cigarettes if they quit before it becomes a habit.				
A-28 I believe the health information about smoking is true.				
A-29 Cigarette smoking should be forbidden inside public places.				
A-30 Most boys <u>start</u> smoking cigarettes to try to become more popular.				
A-31 Most girls <u>start</u> smoking cigarettes to try to become more popular.				
A-32 People who smoke seem to be more at ease with others.				
A-33 Teenage smokers think they are grown up, but they really aren't.				

	(1) Strongly Agree	(2) Mildly Agree	(3) Mildly Disagree	(4) Strongly Disagree
A-34 Smoking cigarettes can cause <u>immediate</u> changes in teenagers' levels of carbon monoxide, respiratory rate, heart rate, and blood pressure.				
A-35 Cigarette smoking increases your risk of developing cancer.				
A-36 Cigarette smoking increases your risk of developing heart disease.				
A-37 Cigarette smoking increases your risk of developing emphysema.				
A-38 If you do smoke or were to begin smoking, you would be more likely to develop cancer than if you were a nonsmoker.				

	(1) Strongly Agree	(2) Mildly Agree	(3) Mildly Disagree	(4) Strongly Disagree
A-39 If you do smoke or were to begin smoking, you would be more likely to develop heart disease than if you were a nonsmoker.				
A-40 If you do smoke or were to begin smoking, you would be more likely to develop emphysema than if you were a nonsmoker.				
A-41 If you were to develop cancer, you would consider it (cancer) a very serious disease, perhaps even life threatening.				
A-42 If you were to develop heart disease, you would consider it (heart disease) a very serious disease, perhaps even life threatening.				

	(1) Strongly Agree	(2) Mildly Agree	(3) Mildly Disagree	(4) Strongly Disagree
A-43 If you were to develop emphysema, you would consider it (emphysema) a very serious disease, perhaps even life threatening.				
A-44 I wish I were older than I am now.				
A-45 I can control the kind of person I will become.				
A-46 Cigarette smoking is harmful only if a person inhales.				
A-47 There's nothing wrong with smoking cigarettes as long as you don't smoke too many.				
A-48 If I smoke around other people, I take away their right to breathe clean air.				
A-49 If you don't smoke cigarettes, other teenagers put you down.				

	(1) Strongly Agree	(2) Mildly Agree	(3) Mildly Disagree	(4) Strongly Disagree
A-50 Smoking cigarettes gives you a good feeling.				
A-51 Teenage smokers think they look cool, but they really don't.				
A-52 A teenager should be able to do the things he wants to do when he wants to do them.				
A-53 I do not want to be just one of the crowd.				
A-54 Teenagers who smoke regularly can quit for good any time they like.				

Answer the next questions according to the categories on the right. Check (✓) one box for each question.

	(1) Never	(2) Not very Often	(3) Sometimes	(4) Very Often
How often do you watch T.V.?				
How often do you listen to the radio?				

	(1) Never	(2) Not Very Often	(3) Sometimes	(4) Very Often
How often do you read newspapers and magazines?				
How often do you see smoking-related information on T.V.?				
How often do you hear smoking-related information on the radio?				
How often do you see smoking-related information in newspapers and magazines?				
How often do you have problems with coughing and wheezing?				

When you hear or see smoking information on T.V., the radio, or newspapers and magazines, is it usually <u>for</u> or <u>against</u> smoking?

	(1) Usually Strongly Against Smoking	(2) Usually Slightly Against Smoking	(3) Usually Not For/ Against Smoking	(4) Usually Slightly For Smoking	(5) Usually Strongly For Smoking
Television Information					
Radio Information					
Newspapers and Magazines Information					

Smoking Behavior

A-60 Which statement below best describes your use of cigarettes? (Check (✓) only one answer.)

____1. Have never tried cigarettes before, not even a few puffs. (If this is your answer, turn to Part (A).)
____2. Have tried cigarettes but never smoked as many as 5 packs. (If this is your answer, turn to Part (B).)
____3. Have smoked at least 5 packs of cigarettes but do not smoke now. (If this is your answer, turn to Part (C).)
____4. Smoke sometimes, but less than 1 cigarette a week. (If this is your answer, turn to Part (D).)
____5. Smoke more than 1 cigarette a week. (If this is your answer, turn to Part (D).)

NEVER SMOKED (A)

1. In your own words, briefly explain why you do not smoke cigarettes.

_____

_____

_____

_____

_____

2. Have you ever wanted to smoke?

____1. Yes ____2. No

THANK YOU FOR YOUR HELP. THAT ENDS THIS SURVEY.

(Please turn this survey over and remain silent)

EXPERIMENTER (B)

1. In your own words, briefly explain why you do not smoke cigarettes.

_____

_____

_____

_____

2. Briefly describe why you tried smoking cigarettes.

_____

_____

_____

_____

3. How old were you when you first tried cigarettes?

_____ Years

THANK YOU FOR YOUR HELP. THAT ENDS THIS SURVEY.

(Please turn over your survey and remain silent)

FORMER (C)

1. How many cigarettes did you usually smoke per day? _____

2. How long did you smoke? _____ (years)

3. How old were you when you first tried cigarettes? _____ (years)

4. What brand of cigarette did you usually smoke?

   (1) _____
   (2) _____
   (3) _____

5. What type of cigarettes did you usually smoke?

   (A) (check one): ____1. Filter
   ____2. No filter

   (B) (check one): ____1. Menthol
   ____2. No menthol

   (C) (check one): ____1. Hard pack
   ____2. Soft pack

   (D) (check one): ____1. Regular length
   ____2. King size
   ____3. Extra long

6. Where did you usually get your cigarettes?

   ____1. Friends
   ____2. Parents
   ____3. Brother(s)
   ____4. Sister(s)
   ____5. Buy them
   ____6. Others

7. Briefly describe where and when you usually smoked.

_____

_____

_____

_____

_____

8. Who did you usually smoke with?

9. Why do you think you started to smoke?

10. Why did you quit smoking?

THANK YOU FOR YOUR HELP. THAT ENDS THIS SURVEY.

(Please turn over your survey and remain silent)

OCCASIONAL AND REGULAR (D)

1. How many cigarettes do you usually smoke per day?
   _____

2. How long have you smoked cigarettes? _____ (years)

3. How old were you when you first tried cigarettes?
   _____ (years)

4. What brand of cigarettes do you usually smoke?

   (1) _____
   (2) _____
   (3) _____

5. What type of cigarettes do you usually smoke?

   (A) (check one): ____1. Filter
   ____2. Nonfilter

   (B) (check one): ____1. Menthol
   ____2. No menthol

   (C) (check one): ____1. Hard pack
   ____2. Soft pack

   (D) (check one): ____1. Regular length
   ____2. King size
   ____3. Extra long

6. Where do you usually get your cigarettes?

   ____1. Friends
   ____2. Parents
   ____3. Brother(s)
   ____4. Sister(s)
   ____5. Buy them
   ____6. Others

7. Briefly describe where and when you usually smoke.

   _____

   _____

   _____

   _____

   _____

8. Who do you usually smoke with?

_____

_____

_____

_____

9. Why do you think you started to smoke?

_____

_____

_____

_____

10. Do you want to quit smoking?

____1. Yes (Why?)_____
____2. No (Why?)_____

THANK YOU FOR YOUR HELP. THAT ENDS THIS SURVEY.

(Please turn over your survey and remain silent)

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